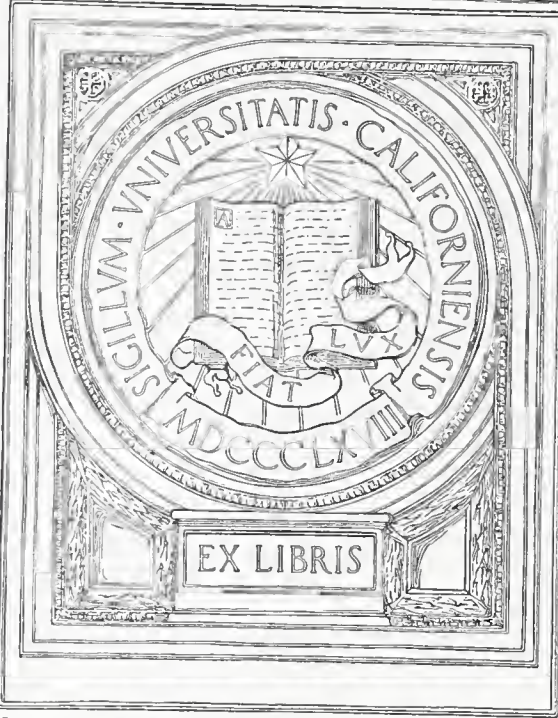
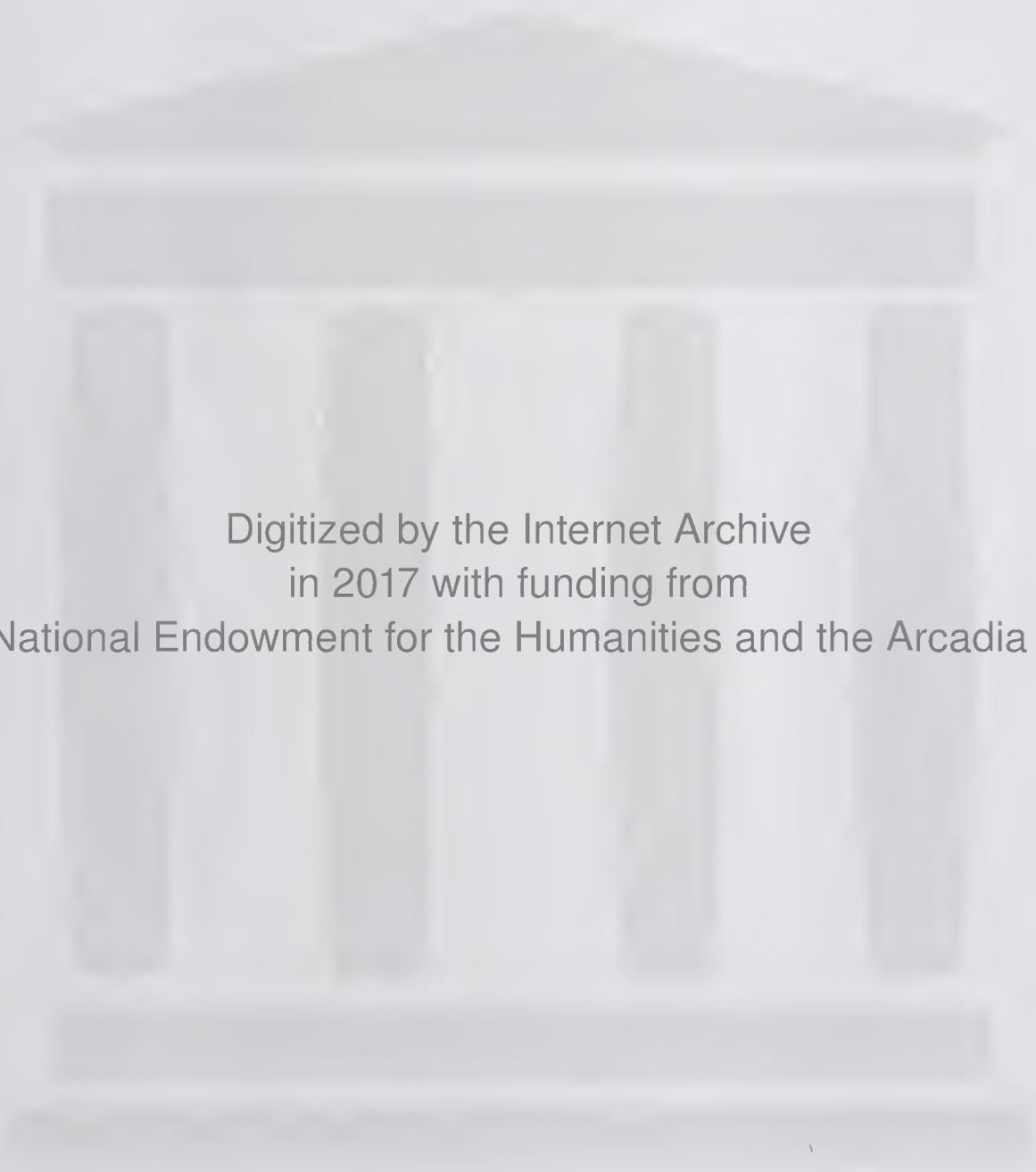


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THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 62 No. 1

FORT SMITH, ARKANSAS

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(1) Frykman, H.M.: *Minn. Med.*, Vol. 38, Jan. 1955. (2) Poth, E.J.: *The J.A.M.A.*, Vol. 163, No. 15, April 13, 1957. (3) McGivney, J.: *Texas State Jour. of Med.*, Vol. 51, No. 1, Jan. 1955. (4) Stern, F. H.: *Jour. of The Amer. Ger. Soc.*, Vol. 11, No. 3, Mar. 1963. (5) Weekes, D. J.: *N.Y. State Jour. of Med.*, Vol. 58, No. 16, Aug. 1958. (6) Abbott, P.L.: *Jour. of Oral Surg., Anes. & Hosp. Dental Serv.*, Vol. 19, July 1961. (7) Weekes, D. J.: *E.E.N.T. Digest*, Vol. 25, No. 12, Dec. 1963.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

89th ANNUAL SESSION

Proceedings I

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C. LEWIS HYATT
Monticello
President
Arkansas Medical Society
1965-1966

PROCEEDINGS
89th Annual Session
ARKANSAS MEDICAL SOCIETY
Little Rock, Arkansas
April 25-28, 1965

FIRST MEETING
HOUSE OF DELEGATES

Speaker J. P. Price called the meeting to order in the Forum Room of the Marion Hotel at 3:30 p.m. on Sunday, April 25th, and called on Society President C. R. Ellis for the invocation.

Mr. Schaefer called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; ASHLEY, E. C. Gresham; BAXTER, John F. Guenther; BENTON, James L. Pickens; BOONE, H. V. Kirby; BRADLEY, George F. Wynne; CHICOT, H. W. Thomas; CLARK, H. D. Luck; CLEBURNE, Nathan L. Poff; COLUMBIA, Paul Sizemore; CRAIGHEAD-POINSETT, Joe Verser, Glen E. Keller, John Kirkley; CRAWFORD, M. C. Edds; CRITTENDEN, David H. Pontius; DALLAS, Don G. Howard; DESHA, J. H. Helums; DREW, A. K. Busby; FAULKNER, C. A. Archer, Jr.; FRANKLIN, David L. Gibbons; GARLAND, M. R. Springer, Jr., W. R. Mashburn, Robert F. McGary; GRANT, Curtis B. Clark; GREENE-CLAY, Omer E. Bradsher; HEMPSTEAD, J. W. Branch; HOT SPRING, C. F. Peters; INDEPENDENCE, J. E. Lytle; JEFFERSON, Ross Maynard, Charles Reid; JOHNSON, Guy Shrigley; LAWRENCE, Ralph Joseph; LITTLE RIVER, N. W. Peacock; LOGAN, John J. Smith; MILLER, Karlton Kemp; MONROE, E. D. McKnight; NEVADA, Glenn

G. Hairston; OUACHITA, Bruce Ellis; PHILLIPS, L. J. P. Bell; PULASKI, Robert Ross, Edgar Easley, John McC. Smith, W. E. Morris, Purcell Smith, James Pappas, Thomas Jansen, William Fulton, William Christeson, James Morrison, Robert Stainton, Bruce Schratz; SEARCY, John A. Hall; SEBASTIAN, A. S. Koenig, W. R. Brooksher, W. B. Stanton, A. C. Bradford; ST. FRANCIS, G. A. Sexton, UNION, J. B. Wharton, Jr., Kenneth R. Duzan; WASHINGTON, R. P. Edmondson, Thomas Gray, Morris Henry; COUNCILORS, Paul Gray, Hugh Edwards, T. E. Townsend, George Burton, Jack Kennedy, W. Payton Kolb, Joseph A. Norton, Stanley Applegate, Ross Fowler, C. C. Long, L. A. Whittaker, President C. R. Ellis, President-elect C. Lewis Hyatt, Speaker Price, Vice Speaker Louis Hundley, Secretary Elvin Shuffield, Past Presidents Joe Verser, W. A. Snodgrass, Jr., James M. Kolb, W. R. Brooksher, O. J. T. Johnston.

Speaker Hyatt introduced a guest present, Mr. A. M. Edwards of the Field Service Division of the American Medical Association.

The chairman of the Credentials Committee, Dr. Joseph Norton, reported that credentials forms had been examined, that 47 delegates had registered and that a quorum was present.

Upon the motion of Wynne and Guenther, the House adopted the minutes of the 88th Annual Session as published in the June 1964 issue of the Journal of the Arkansas Medical Society.

Upon the motion of Norton and Kolb, the House adopted the minutes of the Special Meeting of the House of Delegates held on December 6th, 1964, as published in the March 1965 issue of the Journal of the Arkansas Medical Society, with the following correction:

Page 366, paragraph regarding the Medical Center, change to read: "Mr. Storm Whaley, Vice President for Health Sciences, University of Arkansas Medical Center, spoke regarding the Center's budget proposal for the next biennium. President Ellis made brief comments on the necessity for considering the Medical Center hospital as a teaching facility rather than as a charity hospital. Councilor from the Eighth District, Joe Norton, moved that the House approve the Medical Center's appropriation request and that the Society president appoint a Long Range Planning Committee on the Medical Center with an immediate duty of the committee being to work with the Medical Center officials to draw up a plan for getting legislators and Commission members to work for approval of the budget proposal.

Second by James Kolb, motion carried."

The chairman of the Council, Dr. H. W. Thomas, read the following report of the Council covering meetings held since publication of the report in the March Journal:

First Supplemental Report of the Council

The Council met on Saturday, March 27th, and transacted the following business:

- I. Approved nominations to the Professional Relations Committees of the First and Tenth Councilor Districts.
- II. Approved a proposal by the State Health Department for the cooperation of that department in a program of rehabilitating draft rejectees.
- III. Approved the principle of a program of cytology testing in family planning clinics but withheld action on the method of having the laboratory work done pending further discussions by the pathologists of the State.
- IV. Approved a proposed program for the prevention of mental retardation by prenatal and maternity care of those patients considered to be high risks.

The Council met on Sunday, March 28th, and transacted the following business:

- I. Directed the Special Fee Committee to negotiate



The receiving line forms for the twelfth Senior Medical Day Banquet given by the Arkansas Medical Society and the Arkansas Academy of General Practice, Monday, April 26, 1965. Shown left to right, Dr. Randolph Ellis, President; Mrs. Ellis; Dr. Lewis Hyatt, President-elect; Mrs. Hyatt; Dr. Bill Dave Stewart, Chairman, Senior Medical Day Committee; Mrs. Stewart; Dr. T. E. Townsend, program speaker; Dr. Joe Norton, program speaker.



Dr. Randolph Ellis presides at the Senior Medical Day Banquet.

with the Veterans Administration on an item-by-item basis for a new contract for out-patient care.

II. Voted to ask the Legislative Committee to seek an amendment at the next Legislature which would prohibit advertising by any practitioner of any healing art.

III. Accepted and approved the annual report of audit.

IV. Approved the report of the Budget Committee.

V. Decided there was no indication in the records of the Society that a lifetime retainer of \$300 a year had been voted to Mr. Deisch, former legislative representative for the Society.

VI. Voted to authorize the development and printing of a brochure advertising the Medical Society Speakers Bureau to civic organizations and other groups throughout the State.

VII. Approved a proposed constitutional revision to put into effect a one-day orientation program for all new members. A provisional membership of 12 months will be provided to enable new members to meet the orientation requirement.

VIII. Voted to direct the Executive Secretary to write Mr. E. C. Gathings complimenting him on his support of the Eldercare Bill.

IX. Commended the Committee on National Legislation for its efforts in opposition to Medicare and urged it to continue its vigorous opposition to social security health legislation.

X. Voted to ask the Executive Committee to confer with the State Welfare Director regarding a proposed "Statement of Compliance" with the Civil Rights Act.

The report was referred to Reference Committee No. 2 for consideration.

The chairman of the Constitutional Revisions Committee, Louis K. Hundley, presented the following proposed amendments for final action by the House:

Constitutional Amendments

Proposal No. 1:

Amend the By-Laws, Chapter VIII, Section 1 (A) to add as Committee number eleven the "Committee on Medicine and Religion". Add to Chapter VIII of the By-Laws, Section 12: "The Committee on Medicine and Religion shall work to create and enhance communication between the physician and the clergyman which will lead to the most effective care and treatment of the patient in which both are interested. It shall study the areas in which there is or may be continuing correlation involving medicine and religion."

Upon motion of Louis Hundley and W. R. Brooksher, the House approved and adopted the constitutional amendments.

Proposal No. 2:

Amend Chapter VIII of the By-Laws, Section 1, Paragraph (A), Sub-paragraph "3" (Committee on Public

Health) to add: "Sub-Committee on Liaison with the Nursing Profession".

Upon motion of Louis Hundley and A. S. Koenig, the House approved and adopted the constitutional amendment.

Proposal No. 3:

Amend Article VIII of the Constitution, Section 2 and Article IX, Section 1, by substituting the words "executive vice president" for the words "executive secretary". Amend the By-Laws, Chapter VI, Section 5, and Chapter VI, Section 9, by substituting the words "executive vice president" for the words "executive secretary."

Upon the motion of Louis Hundley and W. R. Brooksher, the House approved and adopted the amendments.

Dr. Hundley then presented the following proposals for changes in the Constitution and By-Laws and explained the necessity for and process of the constitutional revisions. These amendments are to be published twice during the coming year in the Journal of the Arkansas Medical Society and will be read again to the House of Delegates at the 1966 Annual Session for final action.

Proposed Constitutional Revisions

Amend the By-Laws, Chapter I, Section 1, as follows:

Change title of Section 1 to "Section I (a)":

- (a) The name of a physician on the properly certified roster of members of a component society which has paid its annual assessment, shall be prima facie evidence of membership in this Society.

Add to new Section 1 a sub-section (b):

- (b) Membership in this Society shall consist of the following classifications:

- (1) Provisional
- (2) Regular
- (3) Life
- (4) Affiliate
- (5) Affiliate membership as intern or resident
- (6) Military

Amend the By-Laws, Chapter IX, Section 5

Change Section 5 to add the word "officers" after words "Section 5" and to add new paragraphs as follows:

(a) Elections

Component societies shall consist of not less than five members, and there shall be a president, secretary-treasurer and board of censors as set forth in (b) and no member can hold more than one of such offices at one and the same time. There may be such other officers as may be required, including vice-president and board of trustees, also delegates and alternates to the State Society. The term of all officers except the censors shall be for one year. All officers and delegates to the State Society shall be elected during the month of December or at the last meeting of the year in the instance there is no meeting in that month. Vacancies in the offices referred to in this by-law shall be filled in the manner stated in the Society by-laws; but when no provisions are thus made for any such contingency, such vacancies shall be filled by the component county society president, until the time for the annual election of officers.

(b) Election of Censors

- (1) In those county societies of less than 200 members, the Board of Censors shall be composed of three members. The term of office of the censors shall be three years, and they shall be so elected that but one vacancy normally occurs each year.
- (2) In those county societies of more than 200 members, the society may elect to increase the Board of Censors from not less than three (3) to not more



The social hour held in the Banquet Hall preceding the President's installation was well attended, Tuesday, April 27, 1965.



The President's Banquet was served buffet style in the Grand Ballroom of the Marion Hotel, Tuesday, April 27, 1965.

than seven (7) members. The censor shall serve terms of three (3) years and then elections shall be so arranged that no more than three (3) shall be elected in any one year except for the first year that the society elects to increase the size of the board. This year the election of the additional members shall be so arranged that the terms of office of newly elected members shall not conflict with the future election of members as described above.

Add paragraph "(c)" Delegates—This paragraph is transferred from present Section 11:

(c) Delegates

At some meeting in advance of the Annual Session of this Society, each county shall elect a delegate or delegates to represent it in the House of Delegates of this Society, in the proportion of one delegate to each twenty-five members, and one for each major fraction thereof, and the secretary of the county society shall send a list of such delegates to the secretary of this Society at least ten days before the Annual Session.

Add paragraph "(d)" Secretaries, sub-paragraph (1)—This was transferred from present Section 12:

(d) Secretaries

- (1) The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report, he shall endeavor to account for every physician who has lived in the county during the year.

Add paragraph "(d)" Secretaries, sub-paragraph (2)—

transferred from Section 13:

- (2) The Secretary of each component society shall forward its assessment together with its roster of



President Randolph Ellis presides at the President's Banquet, Arkansas Medical Society, Tuesday, April 27, 1965.



President Ellis presents a check in the amount of \$7,483.98 to Dr. Winston K. Shorey, Dean of the University of Arkansas Medical Center, from the American Medical Education and Research Foundation.

* * *

officers and members, list of delegates, and list of non-affiliated physicians of the county, to the secretary of this Society on January 1, and not later than March 1 of each year.

Add following new paragraphs as sub-paragraph "(e)":

(e) Board of Censors

The Board of Censors of component county societies shall examine into and report on the qualifications of applicants for membership in their respective organizations and shall ascertain from the Executive Secretary what the records of his office shows in regard to the past conduct of any such applicants, before making report to their respective societies. The Board of Censors shall review the record of each provisional member at the termination of the provisional period and shall present the same to the society with recommendation for or against regular membership.

The Board of Censors will provide supervision and guidance in matters of medical ethics and etiquette for provisional members. Any time during the provisional period they may recommend to the society that the provisional members be dropped from the society and this may be done by a two-thirds ($\frac{2}{3}$) majority vote of those present and voting at a regular meeting of the county medical society.

The Board of Censors shall supervise the ethical department of all the members of its society and shall counsel individual members where warranted.

The Board of Censors shall have the authority to investigate on their own initiative suspected violations of conduct and to prefer charges when indicated after thorough investigation. They shall receive and investigate charges of unethical conduct made against members of their respective societies by another member, and shall review the findings of the County Public Grievance Committee and the Adjudication and Medical Testimony Committee and make proper disposition of each case.

Amend the By-Laws, Chapter IX, to designate Section 6 title as "Members" and to re-number present Section 5 as Section 6 (a):

- (a) Each county society shall judge the qualifications of its own members, but as such societies are the only portal of this society and to the American Medical Association, every reputable physician who possesses the eligibility qualifications for membership required by Article IV, Section 2, of the Constitution of this Society, and who does not practice or claim to practice nor lend his support to any exclusive system of medicine shall be eligible to membership. No physician or surgeon who solicits patients or business for himself, or for an association or other organization of which he is a member, or by which he is employed, or in which he is interested, shall be eligible for membership in this Society, and no physician who works for, is employed by, or is interested in, any association or organization which solicits patients, members or physicians, shall be eligible for membership in this Society. Any member of the Society who shall hereafter violate any of the provisions hereof shall be expelled from the Society. Before a charter is issued to any county society, full and ample notice shall be given to every such physician in the county to become a member.

Add new provision on classification of members as sub-section (b) of Section 6:

(b) Classification of members

(1) Provisional

Component county societies shall provide a provisional period for applicants seeking membership in their county society of twelve (12) months. New members accepted on a provisional basis shall have all the privileges of regular membership in the society, except as provided in this section of these by-laws and in Section 5 (e). Provisional members shall not have the right to hold elective office, endorse application for membership or serve as a delegate or alternate delegate to the Arkansas Medical Society.

When a provisional member is dropped from the county medical society before the end of the provisional period by means provided in Section 5 (e) of this chapter, he may not apply again for membership in any component county medical society for a period of one year if he continues to



Dr. Robert Watson presents a check to Dr. Shorey, Dean of the University of Arkansas Medical Center, in the amount of \$6,666.67 as a contribution from the Medical Education Foundation for Arkansas, representing part of Medical Society dues paid by Arkansas physicians.



President Randolph Ellis presents the past presidents of the Arkansas Medical Society to the banquet audience. Past presidents standing in the rear of the head table from left to right, Dr. R. B. Robins, Dr. King Wade, Sr., Dr. William A. Snodgrass, Dr. O. J. T. Johnston, Dr. J. M. Kolb, Dr. Joe Verser, Dr. J. J. Monfort, Dr. Louis K. Hundley, Dr. W. H. Mock, Dr. Joe Shuffield, Dr. T. Duel Brown. Seated at the head table left to right, Dr. C. Lewis Hyatt, Mrs. Hyatt, Dr. H. W. Thomas, Mrs. Thomas, Mrs. Ellis, Mrs. Elvin Shuffield, Dr. Elvin Shuffield, Mrs. T. E. Townsend, and Dr. T. E. Townsend.

reside under the jurisdiction of that component county medical society.

At the end of the provisional period, a provisional member *shall* again be considered by the Board of Censors of said component county medical society, and elected by same before his membership becomes permanent.

If, at the end of the provisional period, the provisional member fails to be elected to regular membership, the Board of Censors of said component county medical society will provide counsel directed toward rehabilitation of the rejected physician. The rejected physician may also request the Board of Censors to recommend to the society a further period of provisional membership; and it *may* be granted, the time at which it may begin and the duration of the additional provisional period to be stipulated by the Board of Censors in its recommendation in each individual case, though it may not exceed a period of one year from the date of rejection by the county society. At the end of this additional period of provisional membership, the candidate will again be considered by the Board of Censors, who will place his name before the county society again with recommendation as to acceptance or rejection. If the provisional members fails to be elected to regular membership after the second provisional period, he may not again apply for provisional membership in any component county society until one year has elapsed after the second rejection by the society or upon appeal to the Council of the State Medical

Society as provided in Section 7, Chapter IX of these by-laws.

All provisional members shall have attended at least one orientation program given by the Arkansas Medical Society before being considered for regular membership. Qualifying orientation programs shall be offered at the time and place of the Annual Session of the Arkansas Medical Society and at one other time as set by the Council during each year.

Intern membership, resident membership and military membership shall not be considered as a substitute for any part of the twelve (12) months of provisional membership.

Any member accepted on transfer from another component county medical society shall also serve twelve (12) months as a provisional member and shall attend the orientation program, unless such member has previously attended the orientation program presented by the Arkansas Medical Society, before being considered for regular membership.

(2) Regular

The acceptance of the privilege of regular membership carries with it the obligation and privilege to assume the duties of any office to which the member may be elected or appointed by the county medical society and the Arkansas Medical Society.

(3) Special Memberships

(a) Life

An active member who shall have attained his eightieth year and shall have been a member of



Dr. Julius Hellums and Dr. J. P. Price escorted President-elect C. Lewis Hyatt to the rostrum to be sworn in as President of the Arkansas Medical Society by Dr. C. Randolph Ellis.

his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or elsewhere in the United States, shall, upon establishing the above facts to the satisfaction of his county medical society, and upon the recommendation of such society, be granted the status of a Life Member. Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.

(b) Affiliate

An active member in good standing in his county society may, upon the recommendation of such society, be granted affiliate membership with full voting and other privileges where one or more of the following conditions exist: retirement from active practice, physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and a member must be recommended each year for such special status by the secretary and president of his county medical society following a review and reassessment of his particular situation. An affiliate member shall enjoy full membership privileges and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him for such year.

(c) Affiliate for interns and residents

An annual affiliate membership shall be granted interns and residents, provided they are fully or partially excused from the payment of county society dues, and provided the request for exemption is transmitted through a component society of the Arkansas Medical Society. The requirement for active membership prior to exemption shall be waived for such affiliate members. This type of member shall be accorded full privileges except that he may not vote or hold office, and he shall receive the Journal of the Arkansas Medical Society.

(d) Military

Regular members of the Arkansas Medical Society who are in the service of the armed forces of the

United States, not as career officers, may be classified as military members, and carried on the rolls of their respective county societies as such. Military members shall have a waiver of dues during the time of service, provided that they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of membership shall be issued to them for each year.

Amend Chapter IX to re-number present sections as follows:

- Section 7. (Old Section 6)
- Section 8. (Old Section 7)
- Section 9. (Old Section 8)
- Section 10. (Old Section 9)
- Section 11. (Old Section 10)
- Section 12. (Old Section 14)

Dr. Hundley moved that the report on the new proposals for constitutional revisions be accepted and referred to a reference committee for consideration, second by Shrigley. There was one dissenting vote. The report was referred to Ref-



Dr. Ellis presents the gavel of authority to Dr. C. Lewis Hyatt as incoming President of the Arkansas Medical Society.



On behalf of the members of the Arkansas Medical Society the new President, Dr. Hyatt, presents a plaque of appreciation to outgoing President, C. Randolph Ellis.

erence Committee No. 2.

W. R. Brooksher pointed out that in view of the House's previous action in adopting amendments set out under "proposal 3" above, the new proposals should be revised to change the words "executive secretary" to "executive vice president" and moved that the House approve such revisions; upon second by Hundley, the House so voted. The delegate from Sebastian County, A. S. Koenig, requested clarification of the word "counsel" as used in proposed Section 6 (b) Classification of Members, (1) Provisional, 4th paragraph: "... The Board of Censors of said component county medical society will provide counsel directed toward rehabilitation of the rejected physicians". Dr. Koenig was advised that the term as used means only "advice".

(See page 35 for proposed amendments as revised.)

The chairman of the Committee on Medical Legislation, Dr. Elvin Shuffield, reported on the activities of his committee. Speaker Price commended Dr. Shuffield for his work and referred the Report to Reference Committee No. 1.

President Ellis presented the following report to the House of Delegates:

Report of the President

Although I may not have visited your society during

my term as your president, I assure you that this has been a busy year for me. I have enjoyed much of it but have been quite disappointed at times. Please allow me to report at least our accomplishments and a few specific problems.

Speakers' Bureau Organized—Dr. Joe Verser, Chairman

A speakers' bureau organizational course was held in Hot Springs, January 17, 1965. The attendance was good, being limited for more effective teaching. The teachers were



Dr. C. Lewis Hyatt addresses the banquet audience, accepting the office of President.

furnished by AMA. The purpose of the Speakers' Bureau is to provide speakers for lay audiences on many different subjects. If you need speakers for a civic club meeting, contact Mr. Paul Schaefer or Dr. Joe Verser for suggestions of speakers near you. Sometimes local physicians are excellent for an occasion; but at other times, a speaker from outside the community will be more effective. This is not just to meet a particular emergency, but to keep laymen informed on medical issues.

A Constitutional Revision has been proposed requiring new applicants for membership in the Arkansas Medical Society to remain on a temporary basis until each one has attended an orientation course offered at least once each year by the State Society. During this period, the new member will have limited privileges. This provision has been in the Texas Medical Society Constitution for quite a few years. Our report from them indicates its great usefulness in getting new members interested in the responsibilities and privileges of our medical organizations.

Better Liaison Between the Arkansas Medical Society and the University of Arkansas Medical Center. Since I returned to private practice in the State in 1947, I have heard much criticism of our State Medical Center. Many of us have assumed it to be a fully charity institution and that only. In an effort to create better liaison and understanding between the Arkansas Medical Society and the University of Arkansas Medical Center, the Educational Committee of the Arkansas Medical Society, Dr. Lee Parker, Chairman, met with fourteen members of the faculty of the U.A.M.C. on November 1, 1964. This was in conjunction with a meeting of the Council of your Society at Lake Catherine State Park near Malvern. We heard rather frank discussions from members of the Society and from members of the faculty. We did not solve any problems, but we did renew communications. In his discussion, Dr. Win-

ston K. Shorey, Dean of the School of Medicine, gave an explanation of the function of the Medical Center which I consider significant enough to give you in detail. He explained that the U.A.M.C. was not large enough to be the charity institution of our State. He cited a state south of us with 5,000 charity beds and a high rate of occupancy. There are only 329 beds at the U.A.M.C. He went on to state that the primary function of the U.A.M.C. is teaching with research and charity being secondary. If, for example, the Center admitted all fractured hips referred to it, the orthopedics department could teach nothing else. All orthopedic beds would contain patients with fractured hips. If medicine admitted all cerebrovascular accidents referred, the medical beds would be filled with them. Dr. Shorey sees the U.A.M.C. as a teaching institution which assists us—not in our patients with financial problems—but with our diagnostic and therapeutic problems for which they have special equipment not available elsewhere in the State. I agree with Dr. Shorey's philosophy. I hope you do also.

Long Range Planning Committee. As a result, I think, of the initial meeting mentioned above, a group of Pulaski County physicians came to Malvern the latter part of November 1964 to discuss assistance for our Medical Center. On December 6, 1964, at the Children's Colony in Conway, your House of Delegates authorized the Long Range Planning Committee for the Medical Center. You received a letter from Dr. Tom Wortham, chairman, a few weeks ago.

There is a committee member representing each councilor district. The members are as follows: Dr. Thomas H. Wortham, Jacksonville, Chairman; Dr. Glen Baker, Jonesboro; Dr. Robert Benafield, Conway; Dr. Carl Northcutt, Stuttgart; Dr. Lee Parker, McGehee; Dr. Berry Moore, Jr., El Dorado; Dr. Robert Bransford, Texarkana; Dr. Martin Eisele, Hot Springs; Dr. George Mitchell, Little Rock; Dr.



The 89th Annual President's Banquet filled the Grand Ballroom of the Marion Hotel, Tuesday, April 27, 1965. Dr. C. Lewis Hyatt makes his acceptance speech as incoming president.



Dr. Hyatt receives a certificate of appreciation from the University of Arkansas Medical Center, presented by Dr. Winston K. Shorey, for his establishment of a student loan fund by a generous gift of cash by Dr. Hyatt in memory of his brother, Dr. Robert F. Hyatt.

* * * *

Arthur Moore, Fayetteville, and Dr. Neil Crow, Fort Smith. I shall personally appreciate your cooperating with this committee any way you can. The immediate problem of this committee was to obtain more financial support for the institution. This has been at least partially solved.

Better Cooperation among the Medical, Insurance, and Hospital sections of the Medical Care Team. I began my year as president-elect wondering how we could get better cooperation among the groups supplying medical and surgical care to patients and those groups financing this care. We have accomplished much since the first prepaid medical care plan was organized; but, in my opinion, we have failed to advance in the last ten years. These groups are accusing one another too much. The hospitals are accused of having rates too high; the physicians are accused of hospitalizing patients unnecessarily and thereby producing a rise in premium rates; the insurance companies are criticized for not either having a high deductible or being more firm about paying questionable claims. As a possible solution to this dilemma, I have proposed a "Foundation Plan" which originated in California ten or twelve years ago. However, at the present time, the insurance committee of our society has not approved the idea.

It was referred to them by the Council. I was to discuss it briefly at a meeting of the Hospital-Insurance-Physician Committee at Hot Springs on March 4, 1965; however, this meeting was cancelled because of snow. Whether the "Foundation Plan" is ever accepted in Arkansas or not, we must realize that cooperation of medicine, hospital administration, and insurance is essential for a solution of our mutual problems in the health field.

Forced Socio-Economic Changes in Medicine. The causes of these changes are numerous. May I mention two?

(1) Divisions within our own ranks.

We physicians have made great scientific progress in the last 25-30 years. We practice good scientific medicine. However, we have failed in our mutual understanding of our fellow physicians' problems and in our assistance to one another. One section does not want others doing X-ray work, another section wants all the surgery and even refuses to teach a non-surgeon anything, and still another group is almost completely apathetic about any problems in medicine. We do not even live up to our own established ethical standards at times. We cry "free choice of physician to every patient" and allow some of our members to work under contracts by which a group of people must use a certain physician or pay extra to get the one of his choice. We even allow closed-panel groups to operate within our own state, not just in California.

(2) Secondly, we physicians are reluctant to accept change in the socio-economic aspects of medicine. We accept change quite readily in the scientific field. If we keep a few basic concepts, why can we not change in the socio-economics of medicine? I believe that if we hold steadfastly to only two foundation concepts, we can accept any change:

- A. The absolutely free choice of physician by all patients;
- B. The freedom of the physician to practice medicine as he chooses, controlled only by his own colleagues in a free society.

Very briefly, let us see what the results of these weaknesses, plus other factors, are. Our government has taken our weaknesses as stated and also our greatest achievement and has built an emotion-packed mallet to strike us down. If the medical sciences had not done such an excellent job, where would the government find 18 million elderly? It humiliates me to think that our greatest achievement would be used by our own government to maul us. Actually, if the fiscal and economic experts had done their work as well as we, the financial problem of the elderly would not be with us. The buying power of their savings would not have cut in half. An elderly couple's savings or income of \$100 per month would buy \$100 worth instead of \$50 worth.



President-elect C. Lewis Hyatt and Mrs. Hyatt, Chairman of the Council H. W. Thomas and Mrs. Thomas, and President C. Randolph Ellis at the head table during the President's Banquet.

Some specific problems and suggestions.

- A. As the medical legislation passed the House of Representatives in H.B. 6675, the radiologists, pathologists, and anesthesiologists were omitted from the hospital aspects. Information reaching me indicates that the hospitals will attempt to have these physicians placed back into the hospitalization plan. I hope that the reference committee will encourage open discussion on this subject and return Wednesday with a proposal which we can accept for united action. We must help each other in our efforts to keep all of medicine free from control outside of our profession.
- B. In the report of activities of your Council is an item which should have some discussion. It involves an insurance contract which International Paper Company has with our Blue Cross-Blue Shield. Although a committee has been appointed by the Chairman of your Council to meet with representatives from labor, management, and the insurance carrier, I certainly hope that many of our members—not just delegates—will voice their opinions in the reference committee hearings on this subject.
- C. Three years ago as chairman of your Liaison Committee with the Welfare Department, I persuaded you to accept a small professional fee for office examination and care of welfare clients and Kerr-Mills clients. As I indicated then, I did this to assist in implementing the Kerr-Mills Law in the home state of one of its authors. We hoped that this would avert the Social Security approach for all over 65 years, the wealthy and the needy. Gentlemen, as you know, our efforts were in vain.

The statement prohibiting any additional payment from family or friends of these patients was not mentioned in those discussions. I objected when these first appeared. I objected again to Mr. Jim Phillips on April 22, 1965. The explanation, as I understood it a few days ago, was that regulations agreed to by H.E.W. and Arkansas Welfare Department required this statement. The Kerr-Mills Law itself does *not* require any such statement. In view of the explanations given in the above, I urgently request the reference committee to discuss this program in detail. Unless some changes are

made, including the omission of the statement concerning further payments from other people for these clients, I intend to discontinue any financial participation in the program. My explanation to Mr. Jim Phillips was simply "the government has a right to limit its payment for a service but has no right to limit or fix my charges". Many other changes could easily be made in the program, but this is the most needed. This provision is the most obnoxious.

- D. Your budget committee is recommending an increase in dues. If your society continues to do its part in organized medicine, more money is absolutely necessary. Many times this year, I have considered it quite wise for a committee chairman to attend a regional or national meeting. I did not recommend the trip or encourage the chairman to go, however, because of our limited finances. If any of our members attends any meeting in a solely official capacity for our society, his total necessary expenses, in my opinion, should be paid by the Society. The fact that some of our members feel obligated to work in our organization and even enjoy it certainly does not indicate that they do not need to make a living. They are losing time, which is money, and expense money for the benefit of all of us. Should we not help them bear the financial load? Your officers are planning orientation courses for new members and new county officers. These meetings will require money. I hope that after open discussion in the reference committee, this House of Delegates approves this dues increase enthusiastically.

Although this report has been somewhat lengthy, I hope you consider each item in the spirit in which it was made—that is, to promote the welfare of the people of Arkansas by improving Arkansas physicians and their organizations of mutual benefit.

I consider it an honor to have served you as president this year. It has been a delightfully satisfying but sometimes disappointing experience. I have made many new friends, and I am sure, a few new enemies.

I hope we have an enthusiastic, productive delegates' session. I shall bid you a formal farewell Tuesday evening at the inaugural ceremonies.

Dr. Ellis requested that his report be referred



Mrs. C. Randolph Ellis, Mrs. Elvin Shuffield and Dr. Elvin Shuffield, Secretary of the Society; Mrs. T. E. Townsend and Dr. T. E. Townsend, Chairman of the Program Committee, at the head table during the President's Banquet.

to one of the Reference Committees and Speaker Price assigned the report to Reference Committee No. 1. The article by Dr. Ellis entitled "Shall We Lead or Follow" which appeared in the April 1965 issue of the Journal of the Arkansas Medical Society and the following "Supplemental Report of the President to the House of Delegates" were also referred to Reference Committee No. 1.

Supplemental Report of the President to the House of Delegates

On February 2, 1965, I received information from our own Welfare Department indicating that the physicians of Arkansas would be asked to sign a statement of Compliance with the Civil Rights Act of 1964 in order to continue to get payment for the office visits on Kerr-Mills patients. A few days later I contacted Mr. Jim Phillips at his office (in fact, I made a visit to his office and talked to him personally) to discuss this statement with him. Mr. Phillips gave me the first draft, which he indicated was in the rough, of the statement that the physicians of Arkansas would be expected to sign in compliance with the Civil Rights Act of 1964. He also gave me some information of the section which required this signature. He further stated that the Welfare Department was required to file a similar statement with the Department of H.E.W. before the money could be obtained from Washington to carry out the Kerr-Mills Program in Arkansas. On March 3, 1965, Mr. Phillips told me by phone that this statement would not be sent out at this time because there was some discussion as to whether the physicians would sign it or not. You received a recent letter from Mr. Phillips regarding this issue.

Now all of you who have been practicing in Arkansas for even one or two years know that there is very little, if any, discrimination whatever in the physicians' offices of the state of Arkansas. We have been trained to take care of sick people regardless of their race, creed, color, or national origin. I feel sure that we will continue to do this very thing. However, it seems to me that requiring a signature other than just on a statement of charges to be sent to the Federal Government is a reflection on the good citizenship of the physicians of Arkansas. As good citizens we have always followed the laws of the land, and we will continue to do so. Since the Civil Rights Act is the law of our land, I do not believe it will be necessary for each physician of Arkansas to sign a statement to comply with it. For at least that one reason, I object very much to being required to sign a statement that I will comply with the Civil Rights Act of 1964 in order to draw any finances from the Federal Government in payment for my services.

There is another reason, however, that I object to signing such a statement as has been stated above. It places the Federal Government in a little bit more control of the private practice of medicine. I feel capable of running my own office lawfully and do not need the coercion that is brought about by signing any statement for the Federal Government.

There is another aspect of the publicity concerning the Civil Rights Act of 1964 which at first glance may not seem to be relative to the practice of medicine, but which, in my opinion, is. In the Arkansas Gazette of February 9, 1965, there was printed an article concerning the United Fund of Pulaski County. This article stated that the United Fund would be required to adopt policies of

non-discrimination, as would all the agencies receiving support from that fund. The reason given for this requirement was *not* that the United Fund was getting any Federal money but, and I quote, "The United Fund gets about \$50,000.00 a year from *Federal employees*". Now, if this policy is correct, it indicates that even employees of the Federal Government would be told not to spend their money with agencies or individuals who had not signed the non-discrimination agreement for the Civil Rights Act of 1964. Of course the question arises as to when the employee's money is his own. We have always assumed it to be his own when he gets his check, and cashes it. However, if the above philosophy holds true, and if the Federal Government does finally require physicians to sign the non-discrimination agreement in order to draw federal money, those physicians of Arkansas who do not sign this non-discrimination agreement will not be able to accept any money from any federal employee or anyone who earns even a small part of his income from the Federal Government. This would, of course, include United States postal employees, nearly all school teachers, nearly all farmers, and most highway employees—to list only a few. How far down the line will the Federal Government call their money United States Government money? If it is still Federal Government money after the first employee earns it, will it still be Federal Government money after the second or third employee works for it?

If all of the above mentioned people do come under this Federal money and can only use a physician who has signed a non-discrimination statement of the Civil Rights Act of 1964, a great slice of our private practice of medicine will be involved. I wonder if the statement is *being* withheld now until the stakes (amount of money involved) grow great enough that the physician will be forced financially to sign. I personally, within the next few weeks, must make up my mind as to whether I shall bow down to the Federal Government and sign the non-discrimination agreement or continue treating my patients, regardless of race, creed, color, or national origin, as an independent personal physician. You will have to make the same decision. My only admonition is to weigh the facts of the present and the possibilities of the future carefully and "Beware" before you sign any such statement for the Federal Government.

Since receiving this most recent letter from our Welfare Department, I wonder what obligation we assume by just signing and mailing the statements of charges on the Kerr-Mills and Welfare patients. Will a United States Government agent have the privilege of inspecting my office without a warrant? I have not consulted my attorney on this aspect of the problem. You may want to discuss the issue with your lawyer friend.

The delegate from Bradley County, Dr. George F. Wynne, presented the following proposal:

"The Bradley County Medical Society proposes to the Arkansas Medical Society that a resolution be adopted by this group, resolving that the Arkansas Medical Society go on record as opposing the Johnson Administration program of Socialized Medicine, the Civil Rights voting law, and the Civil Rights Act. Secondly, we as a group wish to voice our opposition to the Federal Government's interference with individual liberties."

Speaker Price referred this proposal to Reference Committee Number One.

A delegate from Sebastian County, Dr. A. S.

Koenig, introduced the following resolution:

WHEREAS, House Bill 6675 has passed the House of Representatives in the Congress of the United States and is now pending before the Senate, and

WHEREAS, House Bill 6675 contains a provision for the voluntary insurance of physicians' services by contributions from individuals and the government, and

WHEREAS, the National Association of Blue Shield Plans, at its annual business meeting April 1965, authorized its staff to offer the services of Blue Shield to administer this portion of the law, and

WHEREAS, Blue Shield, which is controlled by physicians, is the largest single underwriter of medical insurance in the Country and has the greatest experience and administrative ability in this field;

NOW THEREFORE BE IT RESOLVED that the Arkansas Medical Society endorse the principle of the administration of the voluntary medical insurance portion of H.R. 6675 by Blue Shield both nationally and locally should this bill become law;

AND BE IT FURTHER RESOLVED that a copy of this resolution be transmitted to Arkansas Blue Cross-Blue Shield and to the American Medical Association.

Speaker Price referred the resolution to Reference Committee No. 1.

Dr. L. A. Whittaker, councilor from the tenth district, presented the following resolutions:

Resolution No. 1, Dr. Whittaker

WHEREAS the public image of organized medicine and its various branches are in need of improvement; and

WHEREAS a great deal of confusing information is being constantly supplied by various news media; and

WHEREAS the citizens of our State and Country have voiced a need for prompt, accurate, and understandable information concerning organized medicine's leadership, in political as well as medical fields; and

WHEREAS news media, television, radio, newspapers, and such are readily available to carry our story to the people;

THEREFORE, BE IT RESOLVED that the Arkansas Medical Society, through its various officers and committees, undertake a program of public information on a repeated sustaining basis

of time and/or space purchased through such news media that it deems proper; and

BE IT RESOLVED that a separate committee be appointed by the Council to carry out and expedite the prompt promulgation of this program; and

BE IT FURTHER RESOLVED that a copy of this resolution be given to our several delegates to the A.M.A. with instructions to recommend that such a program be instituted by the A.M.A. for national coverage.

Resolution No. 2, Dr. Whittaker

WHEREAS the Congress of the United States has passed legislation providing Federal monies for medical care of the needy and aged; and

WHEREAS the President of the United States has approved the measure, making it law, and works diligently to see that its provisions are carried out; and

WHEREAS these Federal funds are to be provided to the several states, including Arkansas; and

WHEREAS the Arkansas Medical Society desires to implement this law and to comply with the intent of the law; and

WHEREAS the Arkansas Medical Society, believing that its members are most familiar with the medical needs of our citizens and are medically oriented as to the proper care of the sick and debilitated;

THEREFORE, BE IT RESOLVED that the Arkansas Medical Society, being in a position to make recommendations as to the implementation of the law, hereby recommends the proper agency of the State of Arkansas to administer this law to be the State Board of Health. And that the State Health Officer, being medically oriented and having the facilities to do so, be appointed the director of this department; and

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the Governor of our State and to the State Health Officer.

Both resolutions presented by Dr. Whittaker were referred to Reference Committee No. 1.

Councilor from the Fifth District, Dr. George Burton, presented the following resolutions:

Resolution No. 1, Union County

WHEREAS it is common knowledge among the membership of this Society that the Federal Government may require a signature by each of us for a pledge of compliance with the Civil

Rights Law, and

WHEREAS each of you has received a copy of this anticipated pledge, and

WHEREAS we feel that generally, physicians have been law abiding citizens and in the future will continue to be, and

WHEREAS we feel that the act of signing such pledge would insult the patriotism and loyalty of the physician.

THEREFORE, let it be resolved that the Arkansas Medical Society recommend to its members that they sign no such pledge or similar compliance either now or in the future.

Resolution No. 2, Union County

WHEREAS it appears almost certain that some form of Federal Control over the practice of Medicine will soon be in existence, and

WHEREAS it will be the responsibility of each and every physician to decide for himself or herself whether or not to participate in these programs and whether or not to be subjected to the dictates of these Bureaus, and

WHEREAS there exists no mechanism by which the Arkansas Medical Society can make rules and enforce such rules upon its members, and

WHEREAS it is obvious that any action taken

by the members must be uniform and strictly adhered to, if the membership is to be effective, and

WHEREAS it is desirable that each member and each component county society know the intentions and feelings of other members and other county societies concerning the participation in these programs of socialized medicine, and

WHEREAS the passage or rejection of this resolution is not intended to infer that the Arkansas Medical Society is issuing rules of conduct for its members, but, that it serve the purpose of uniting the actions of its members,

THEREFORE BE IT RESOLVED that Arkansas Medical Society today cast a vote in the meeting of the House of Delegates and that the Question be stated thusly—

“Shall the individual physician continue to render service to all patients not able to pay and shall refuse to accept money for payment of his services directly from the Federal Government or from State funds partially or totally supplied by the Federal Government.”

Speaker Price referred both resolutions to Reference Committee No. 2. One member of the House objected to having these resolutions referred to the reference committee.



The family of President-elect Hyatt attended the President's Banquet. Standing left to right, his daughter, Mrs. Charlotte Hyatt McGarr and her husband, Mr. Bobby McGarr; C. Lewis Hyatt, Jr., Mrs. Hyatt, and Dr. Hyatt. Seated left to right, Mrs. David T. Hyatt and Dr. David T. Hyatt, Dr. Lewis Hyatt's uncle, and his mother, Mrs. Catherine Hyatt.

The delegate from Ouachita County, Dr. Bruce Ellis, presented the following resolution:

Ouachita County Resolution

WHEREAS, the A.M.A. has proposed Elder-care with added medical, surgical, drugs, and other benefits for the aged;

WHEREAS, 21 states already have medical and surgical benefits under their respective M.A.A. programs which we do not furnish in Arkansas;

WHEREAS, the budget for the M.A.A. proposal for Arkansas was passed into law during the last legislative session increased from fourteen million to twenty five million dollars;

WHEREAS, the national average for the total medical services in the United States is 25% of the total health expenditure, but under the present M.A.A. program in Arkansas the physicians receive less than 3% of the M.A.A. budget;

WHEREAS, the Federal Government has under consideration a greatly expanded health program for the aged;

THEREFORE, let it be resolved that the Liaison Committee, representing the A.M.S. before the Welfare Department on the M.A.A. program, be expanded from the present Executive Committee and be instructed to implement the expansion of medical services in the Arkansas M.A.A. program;

AND, THEREFORE, BE IT FURTHER RESOLVED, that specific areas of physicians' services be clearly defined to include surgery, hospital care, clinic services, house calls, and medical services in nursing homes; also, that the charges for these services be determined on the basis of the California Relative Scale Value;

BE IT FURTHER RESOLVED, that this new committee meet not later than June 1, 1965, with the State Welfare Department and report to the House of Delegates before the beginning of the fiscal year beginning July 1, 1965.

Speaker Price referred the resolution to Reference Committee No. 2. One member of the House objected to having the resolution referred to the Reference Committee.

A delegate from Pulaski County, Dr. Tom Jansen, presented the following proposal from that county society:

Pulaski County Resolution

WHEREAS it has been the practice for the past few years to require all physicians who regis-

ter for the Annual Session of the Arkansas Medical Society to buy a ticket for the annual banquet and entertainment,

NOW THEREFORE BE IT RESOLVED that the Pulaski County Medical Society instruct its delegates to seek to have the authority restored to allow for registration at the State meeting without compulsory purchase of dinner-entertainment tickets.

The speaker referred the resolution to Reference Committee No. 2.

Dr. Price called the attention of the members of the House to meetings of the Reference Committees and urged all members to take advantage of the opportunity to participate in the open hearings on the various reports and resolutions referred to each committee. A listing of the items referred to the committees at that session was read for the information of the delegates.

Speaker Price announced that elections would be held immediately following adjournment of the House of Delegates to select nominees for positions on the Arkansas State Board of Health and the Arkansas State Medical Board.

The speaker then announced that the selection of the nominating committee for election of officers would be made. Delegates from the various councilor districts held meetings on the floor and selected the nominating committee as follows: First District, Ralph Joseph, Walnut Ridge; Second District, Hugh Edwards, Searcy; Third District, L. J. Pat Bell, Helena; Fourth District, Julius Hellums, Dumas; Fifth District, George Wynne, Warren; Sixth District, James Branch, Hope; Seventh District, M. R. Springer, Hot Springs; Eighth District, James Morrison, Little Rock; Ninth District, H. V. Kirby, Harrison; Tenth District, Guy Shrigley, Clarksville.

The House of Delegates adjourned at 5:30 p.m.

SCIENTIFIC SESSIONS

First Scientific Session,

Monday Morning, April 26, 1965

The first scientific session of the meeting opened at 8:00 a.m. on Monday, April 26, 1965, in the Lecture Hall of the Robinson Auditorium with the showing of the scientific films "Recurrence in Inguinal Hernia" and "Resuscitation of the Newborn". Lectures began at 9:00 a.m. with Thomas E. Burrow of Hot Springs, first vice president of the Society, presiding. A Symposium on Current Concepts of Diagnosis and Management of Vascular Disease was presented by physicians

from the Mayo Clinic and Mayo Foundation in Rochester, Minnesota. Speakers were: John A. Spittell, Jr., Consultant in Medicine, "Vascular Clues in Diagnosis"; Robert O. Brandenburg, Consultant in Medicine, "What's New in Coronary Artery Disease?"; Hillier L. Baker, Jr., Consultant in Radiology, "Radiologic Contrast Studies in Vascular Disease". Following the lectures, there was a panel discussion moderated by Jack P. Whisnant, Consultant in Neurology of Mayo Clinic and Mayo Foundation.

Second Scientific Session,

Monday Afternoon, April 26, 1965

Charles A. Taylor of Batesville, second vice president of the Society, presided at the Monday afternoon session, which was a continuation of the Symposium on Current Concepts of Diagnosis and Management of Vascular Disease presented by members of the staff of the Mayo Clinic and Mayo Foundation. Philip J. Osmundson, consultant in Medicine, discussed "Medical Treatment of Hypertension"; "Selection of Stroke Patients for Definitive Treatment"

was the topic of the presentation of Jack P. Whisnant, consultant in Neurology; and Robert B. Wallace, consultant in Surgery, spoke on "Reconstructive and Revascularization Procedures in Arterial Surgery". The panel discussion following the lectures was moderated by J. A. Spittell, consultant in Medicine at Mayo Clinic and Mayo Foundation.

Third Scientific Session,

Tuesday Morning, April 27, 1965

The scientific films "Tracheotomy and Cricothyrotomy" and "Thumb Reconstruction by Toe Transfer" were shown prior to the beginning of scientific lectures in the Lecture Hall of the Auditorium on Tuesday morning. Omer E. Bradsher of Paragould, third vice president of the society, presided at this session. Speakers were: Howard W. Jones, Baltimore, "Amenorrhea"; F. R. Guilford, Houston, "Selection of the Deaf Who Can Be Helped Surgically"; Harry C. Shirkey, Birmingham, "Use of Drugs in Pediatrics".

Panel Luncheons,

Tuesday, April 27, 1965



The Council of the Arkansas Medical Society for 1965-66. Standing left to right: Past President Randolph Ellis; Councilors L. J. P. Bell, Payton Kolb, Ross Fowler, Eldon Fairley, C. C. Long; Speaker of the House J. P. Price; Past President J. M. Kolb, and Councilor Stanley Applegate. Seated left to right: Councilors, George Burton, Hugh R. Edwards, T. E. Townsend; Chairman of the Council H. W. Thomas, President C. Lewis Hyatt, President-elect L. A. Whittaker, Secretary Elvin Shuffield, Councilors Jack W. Kennedy, John P. Wood; Executive Vice President Paul C. Schaefer. Members of the Council not shown are, Councilors Paul Ledbetter, Paul Gray, Paul Millar, Perry Dalton, Karlton Kemp, Robert F. McCrary, Joseph A. Norton, A. S. Koenig, First Vice President Richard F. Graham, and Treasurer Ben N. Saltzman.

Three panel luncheons were held from 12:30 to 2:15 p.m. on Tuesday. The subject for the panel luncheon program number one was "Family Planning". Robert L. Sherman of Fort Smith was moderator for the panel program. Speakers were Howard W. Jones of Baltimore; E. Stewart Allen of Little Rock; William L. Valk of Kansas City; and Robert Matthews of Little Rock.

Panel Luncheon number two was moderated by Benjamin Drompp of Little Rock and has as its subject "Low Back Pathology". Speakers were Robert H. Ramsey of Dearborn, Michigan; Hillier L. Baker of Rochester; and Jack Whisnant of Rochester.

The third panel luncheon program, on "Office and Clinical Use of Drugs by the Internist, Pediatrician, and Surgeon", was moderated by Theodore C. Panos of Little Rock. Speakers were: Harry Shirkey of Birmingham, Robert O. Brandenburg of Rochester, and Robert B. Wallace of Rochester.

SPECIALTY MEETINGS

Dermatology

The Arkansas Dermatologic Society had a presentation of clinical cases at the University of Arkansas Medical Center out-patient building on Sunday morning, April 25th, 1965, followed by a discussion, and luncheon at the Coachman's Inn. Dr. Harold O. Perry of the Mayo Clinic in Rochester, Minnesota, was a special guest for the meetings.

Urology

The Urology Section held a luncheon meeting on Sunday, April 25th, 1965, in the Court Room of the Marion Hotel. A pyelogram conference followed the luncheon.

Eye, Ear, Nose and Throat

The EENT Section met all day on Tuesday, April 27, 1965, in the Marion Hotel. Speakers for the program were: Henry Allen of Boston, F. R. Guilford of Houston, and Morriss Henry of Fayetteville.

Obstetrics-Gynecology

The Section on Obstetrics and Gynecology met for scientific lectures and a business session following the panel luncheon program on Tuesday, April 27th. Dr. Howard W. Jones of Baltimore was guest speaker for the scientific session.

Internal Medicine

The Arkansas Society of Internal Medicine held a meeting in the Marion Hotel beginning at 2:30 p.m. on Tuesday, April 27th. Robert S.

Long of Omaha, Nebraska; Joseph T. Painter of Houston, Texas; and Mr. Albert V. Whitehall of San Francisco were guests for the meeting.

Orthopedics

The Orthopedic Section held a business session in the Marion Hotel beginning at 2:30 p.m. on Tuesday, April 27th.

SENIOR MEDICAL DAY BANQUET

On Monday evening, April 26th, the Society entertained the senior medical students at the University of Arkansas Medical Center with a banquet in the Continental Room of the Marion Hotel. C. R. Ellis, president of the Society, was master of ceremonies. The invocation was by Bill Dave Stewart, chairman of the Senior Medical Day Committee. Rodger Dickinson of DeQueen spoke on "Medical Ethics", Thomas E. Townsend of Pine Bluff discussed "The Doctor and Organized Medicine" and Joseph A. Norton of Little Rock discussed "The Doctor's Community Responsibility".

FIFTY YEAR CLUB BREAKFAST

Members of the Fifty Year Club of the Arkansas Medical Society were honored with a breakfast in the Marion Hotel on Tuesday morning, April 27th. Mr. C. Hamilton Moses was guest speaker.

PAST PRESIDENTS BREAKFAST

The past presidents of the Arkansas Medical Society were honored at breakfast on Wednesday morning at the Marion Hotel.

MEMORIAL SERVICE

The Joint Society-Auxiliary Memorial Service was held in the Lecture Hall of the Arlington Hotel, beginning at 11:45 a.m. on Tuesday, April 27th, with the Society president, C. R. Ellis, presiding. Invocation was by Joe Norton of Little Rock.

Dr. Ellis read the names of the deceased members of the Society:

E. H. Abington, Beebe
 Samuel J. Allbright, Searcy
 Shelby Atkinson, North Little Rock
 G. Harrison Butler, Fayetteville
 Oliver W. Clark, Pine Bluff
 K. W. Cosgrove, Sr., Little Rock
 N. B. Daniel, Texarkana
 D. A. Dickerson, Marked Tree
 Joe Hardin, Little Rock
 George L. Hardgrave, Clarksville

Claud S. Heffington, Fort Smith
 John S. Hendricks, DeQueen
 William C. Hensley, Charleston
 Lynwood B. Jones, Helena
 H. M. Keck, Fort Smith
 Charles E. Kennedy, Smackover
 John H. Kilgore, Sr., Pine Bluff
 Ralph A. Law, Little Rock
 L. H. McDaniel, Tyronza
 J. E. McGuire, Piggott
 A. H. Maddox, Paragould
 W. A. Nowlin, Roland
 C. E. Oates, North Little Rock
 W. M. Parker, DeValls Bluff
 W. B. H. Pool, Bodcaw
 William I. Porter, Little Rock
 L. D. Reagan, Little Rock
 Thomas E. Rhine, Thornton
 B. A. Rhinehart, Little Rock
 Jesse D. Riley, State Sanatorium
 Julius K. Sheppard, El Dorado
 James G. Thomas, Little Rock
 Ewell I. Thompson, Little Rock
 James L. Weathers, Salem
 W. J. B. Williams, Cotton Plant

Mrs. J. P. Price read the names of the deceased members of the Auxiliary:

Mrs. Jud Martindale, Hope

Mrs. Allen Russell, Pine Bluff
 Mrs. W. F. Adams, Fort Smith
 Mrs. C. W. Garrison, Little Rock
 Mrs. James G. Thomas, Little Rock
 Mrs. P. L. Hathcock, Fayetteville
 Mrs. Lloyd B. Andrews, Fayetteville
 Mrs. Karlton Kemp, Texarkana

The Memorial Address was made by Art Martin of Fort Smith.

Memorial Address

Each year at this hour, we assemble here to pay tribute and to honor those who have left us during the past year. Each year the list is new. It is a sobering thought to realize that some of us here today may be on this list next year. The departure of those since our last meeting, and the prospects of the future list, make us ponder the concept of immortality.

Theologians and philosophers of all creeds have agreed that life must be immortal in some form. We can leave the differences in these beliefs to each philosophy and creed. It is strange and wonderful that the things man believes in most are the very things he cannot prove or even clearly express. It is almost a rule that if you can explain a thing exactly, it does not mean much to you. The vital things are too real to be described. Because we cannot express them, we



The Arkansas Medical Society honored the Fifty Year Club with a breakfast on Tuesday morning, April 27th. Standing left to right, G. W. S. Ish, A. D. Cathey, L. C. McVay, C. W. Hall, E. M. Gray, O. J. T. Johnston, J. A. Martin, W. A. Fowler, and W. A. Lamb. Seated left to right, D. W. Goldstein, J. H. McCurry, W. H. Moreland, Guest Speaker Mr. C. Hamilton Moses, W. H. Mock, and A. M. Washburn. (Not pictured but present, C. B. Dixon.)

have no power to make them plain to another person. This is why the important things in life are always private. We can feel them but we cannot express them. We can share them only with men whose spirits are in harmony with ours. Our belief in immortality depends on our faith.

There is a form of immortality that we can see and understand. We believe that these who have preceded us have attained this immortality. Their thoughts and feelings have become immortal with those of us who remain.

By study of the Holy Bible, we are able to follow the development of a culture from barbaric stages to a relatively advanced culture. Early in the history of man, an eye for an eye was the rule of life. From this beginning, the culture progressed to a law of love, or a Golden Rule culture. This evolution occurred over a period of centuries as each generation was capable of understanding. This ability to understand was passed from one generation to the next. The evolution is not yet complete. The maturity of the present culture is an improvement over the past, but the future culture will be even further progressed.

Never in history has the rights of others and the Golden Rule been so used in human relations as it is today. In spite of all the inequities in life, never has man been so concerned about the welfare of his brother in all phases of his existence. The Medical Profession can be proud of its share in developing the concepts of being our brother's keeper.

This interest in the welfare of others has been inspired in each of us by all those who have preceded us during this and previous years. They have contributed their full amount to this cultural growth and development, even as now we are contributing our bit to society. Today we honor those who have completed their task and their contribution to the monumental development of a better world for us and our children. The principles and beliefs by which each of these lived, are a part of us who remain. Through their contribution toward the goal of perfection, they have truly joined an immortality which we can understand and appreciate. Perfection may never become a reality, but progression in this direction will continue through the efforts of men and women such as these.

A PLAN FAR GREATER

"There is a plan far greater than the plan you know,

There is a landscape broader than the one you see.
There is a haven where storm-tossed soul may go—
You call it death—we, immortality.

You call it death—this seeming endless sleep,
We call it birth—the soul at last set free,
'Tis hampered not by time or space—you weep.
Why weep at death? 'Tis immortality.

Farewell, dear voyageur—'twill not be long.
Thy work is done—now may peace rest with thee.
Thy kindly thoughts and deeds—They will live on.
This is not death—'tis immortality.

Farewell, dear voyageur — the river winds and turns,
The cadence of thy song wafts near to me,
And now thou know'st the thing that all men learn;
There is no death—there's immortality."
Anonymous

Following the Memorial Address, a sextette from the Arkansas Baptist Hospital School of Nursing sang. Benediction was by Dr. Norton.

PRESIDENT'S BANQUET

April 27, 1965

The Annual President's Banquet was held on Tuesday, April 27th, in the Ballroom of the Marion Hotel with the Society president, C. R. Ellis, presiding. Dr. Ellis introduced the following special guests:

Mrs. Jordan Kelling, president of the Auxiliary to the Southern Medical Association
Mrs. Charles Wilkins, president of the Auxiliary to the Arkansas Medical Society
Mrs. James W. Branch, immediate past president of the Auxiliary to the Arkansas Medical Society
Mrs. John McCollough Smith, president-elect of the Woman's Auxiliary to the Arkansas Medical Society
Mrs. Helen Cameron, president of the Arkansas State Medical Assistants Society
Miss Hilda Scott, Executive Director of the Arkansas State Nurses Association
Sister Mary Gregory, President of the Arkansas State Nurses Association

President Ellis called on J. Harry Hayes, Jr., to present the awards for the judging of the scien-

tilic exhibits. The winners were:

First Place: Drs. Scruggs, Langston, Bearden, Lane and Brenner

Second Place: Dr. Glenn Horton

Third Place: Drs. Rodgers, McCaskill and McGinnis

Dr. Ellis then called on Austin Grimes to present the first three prizes to winners of the golf tournament. Medalist honors went to J. Warren Murry of Fayetteville. Jack Gardner won second place, and the prize for third place was awarded to John Kirkley of Jonesboro.

On behalf of the American Medical Association and Research Foundation, Dr. Ellis presented a \$7,483.98 check to Winston K. Shorey, Dean of the University of Arkansas Medical Center. The AMA-ERF contribution may be used by the Medical School for special projects or expenses outside its budget.

Robert Watson, president of the Board of Directors of the Medical Education Foundation for Arkansas, presented a check for \$6,666.67 to Dean Shorey for use in a federal matching fund student loan program which will make \$66,666 available

to Arkansas students.

Dean Shorey presented a plaque from the University Board of Trustees to Dr. C. Lewis Hyatt in appreciation of the memorial fund which he has established at the Medical School in honor of his brother, the late Dr. Robert F. Hyatt, Jr.

Dr. Ellis made the following remarks to the membership as the out-going president:

"During this year, I have passed through at least three emotional stages. The first was one of enthusiasm and expectation. I really thought we could get things done this year. The second phase was one of utter disappointment because of our members' apathy and resulting lack of knowledge concerning the plight of the American people in general and physicians in particular. The third and last phase is one of sympathetic understanding that nearly all physicians are doing excellently the task they were trained to do—treating patients. We were not trained to be politicians or even public relation experts or economists. We have thus trusted economics, public relations, and legislation to ones trained in those fields. But, fellow physicians, our friends in those fields have



The Past Presidents of the Arkansas Medical Society were honored with a breakfast on Wednesday morning, April 28th. Standing left to right, W. H. Mock, O. J. T. Johnston, Joe Verser, Louis K. Hundley, J. M. Kolb, and W. A. Snodgrass. Seated left to right, W. R. Brooksher, Joe Shuffield, J. J. Monfort, and C. Randolph Ellis.

failed us. They are even now taking the greatest achievement of the medical professions—the increase in longevity, and the greatest failure of our economists—the collapse of our monetary values—to form a mallet which they have loaded with emotion and are using to strike us down. Thereby, they are beginning the destruction of the greatest health system ever known to man. If the medical sciences and professions had failed, how could our Congress have found 18 million elderly to strike us with? If this 18 million elderly people had the full value of their dollars, which they have saved, how could but few of them need free medical care?

Do you doubt that by way of medicare and the Civil Rights Act you will be completely controlled by government within five years? If such is prevented, it must be done *now*—not next month or next year but *NOW*. Financial loss, temporary and probably permanent, must be accepted. The time has come when we must not just request, but demand, sound principles of medical care for all people regardless of age, and as I stated one year ago, this includes the freedom of the physician to practice medicine within the restriction, if any, of his own profession, and the freedom of the patient to choose any qualified physician or hospital. Personally, I have almost reached the point at which I believe Patrick Henry found himself when he said (and I paraphrase a part) “Is life so dear or peace so sweet as to be purchased at the price of chains and slavery? Forbid it, Almighty God. I know not what course others may take, but as for me give me liberty to practice medicine as my profession thinks best or give me financial death.”

I am not a soldier. I have never fought a battle. But as I consider the problems that lie ahead of our profession, I think of that grand old soldier, General Douglas MacArthur, as he spoke right out of his heart without notes or text, to the graduating class at West Point shortly before his death. His subject was “Duty, Honor, Country”. I ask you, “What is your duty? How can you best honor your country—by caring for your patients as you and your profession decide or as your government dictates?” You must give the answer. I only ask permission to repeat the words—“Duty, Honor, Country”.

In 1917, we entered World War I “to make the world safe for democracy”. In 1941, we fought a war against dictatorship “to end all wars”. I wonder what those who gave the supreme sacrifice

then would think of our socialist systems now. What would the past presidents of the Arkansas Medical Society of fifty years ago think of our organization today?

Dr. John McCrae, a Canadian physician, treating the wounded in Flanders in 1917, gave us some indication of what these individuals might think when he wrote:

IN FLANDERS FIELDS

In Flanders fields the poppies blow
Between the crosses, row on row
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

We are the Dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders fields.

Take up our quarrel with the foe:
To you from failing hands we throw
The torch; Be yours to hold it high.
If we break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.

Dr. Ellis then requested all past presidents in attendance to go to the stage for the installation ceremony. The following past presidents of the Society were present and were introduced: Joe Verser, J. J. Monfort, James M. Kolb, Louis K. Hundley, H. King Wade, Sr., Joseph F. Shuffield, R. B. Robins, O. J. T. Johnston, and W. H. Mock. At the request of Dr. Ellis, J. P. Price and Julius Hellums escorted president-elect Hyatt to the rostrum and the oath of office of the president of the Arkansas Medical Society was administered by Dr. Ellis. Dr. Hyatt presented a plaque of appreciation from the Society to Dr. Ellis in recognition of his services as president during the past year.

Dr. Hyatt introduced the following members of his family: his wife; his mother, Mrs. Catherine W. Hyatt; his daughter, Mrs. Charlotte Hyatt McGarr; his son-in-law, Bobby McGarr; his son, Lewis Hyatt, Jr.; his uncle, Dr. D. T. Hyatt, and Mrs. D. T. Hyatt. He then made the following remarks in accepting the presidency:

“May I express my sincere appreciation for this great honor which you have bestowed upon me. I feel humble, grateful and apprehensive, fully realizing that this office will require considerable

effort, time and wisdom. The time and effort I will give to the very best of my ability. The wisdom must come from Divine Providence and you.

There are a few remarks I should like to make regarding our coming year.

1. We need more participation by more physicians of Arkansas in the affairs of organized medicine. Some effort by each member of the profession would increase our effectiveness by a great deal. Do not criticize the AMS or the AMA publicly. I know doctors who do this. Let us come and voice our opinion strongly at medical meetings and then present a united front to the public. A friend of mine, the late Congressman W. F. Norrell of my home town, once gave this advice to an aspiring young politician: "Never criticize or say anything detrimental about one of your constituents. If you just can't find anything good to say truthfully, say he comes from a fine family."

We are living in changing, troubled times and we must adjust. At a time when our profession is in its brightest hour from the standpoint of service and efficiency, we are under political pressure throughout the entire world. We *must* stand together. We have great influence—unfortunately, we do not have great political strength. We should join and cooperate with other groups of like thought and be vigilant and articulate in our support of what we believe is right in professional, moral and political issues. We must constantly fight excessive Federal Control and regulation. There is no clear cut single battle which we can win or lose. We must continue to strive to present our side and to cultivate our friends, help them and ask them to help us. One very active physician in our group said, "We've lost! What the heck! We might as well quit!" Both he and I know he didn't mean it. But, in all of our decisions we must keep in mind that our primary function is the most effective care of our patients.

2. We need improved relations between practicing physicians of Arkansas and our fine Medical Center. Although these relations are much better now than they have been at some times in the past, they can still be improved. We need the best medical education for our young physicians and continuing good post-graduate education for our active practitioners. The Medical Center's relationship to those in private practice might be compared to the relationship of West Point to the troops on the battle line. Those in active combat against disease must have the information, assistance and backing of the Medical

Center. The University, in turn, needs our support, financially and politically. Toward this end, it has been my privilege to initiate a Fund to be known as the Memorial and Honor Fund, University of Arkansas School of Medicine in honor of my brother, the late Dr. Robert F. Hyatt of Monticello, whom many of you here remember. This fund can accomplish two things: First, we can show the Medical Center that it has the support of the physicians of the State, and secondly, we can contribute in a limited way to special projects for which there is need which may not be covered by the regular budget.

3. We need to do everything that we can to improve professional and public relations. In this regard, differences among specialty groups and between general practitioners and specialists should not be aired publicly as has been done at times in the past few years. We are all physicians and should conduct ourselves accordingly. The viewpoint of specialty groups should not become so narrow as to fail to see the problems and actions of the profession as a whole.

With the help of Divine Providence and your assistance and cooperation, we shall have a good year."

Following the inaugural banquet, a dance was held in the Ballroom of the Marion Hotel.

FINAL MEETING HOUSE OF DELEGATES

Speaker J. P. Price called the House of Delegates to order at 10:00 a.m. on Wednesday, April 28, 1965, in the Lecture Hall of the Robinson Auditorium. He called on the president of the Society, C. Lewis Hyatt, for the invocation.

Mr. Schaefer called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; BAXTER, Ben N. Saltzman; BENTON, James L. Pickens; BOONE, H. V. Kirby; BRADLEY, George F. Wynne; CHICOT, H. W. Thomas; CLARK, H. D. Luck; CLEBURNE, Nathan L. Poff; COLUMBIA, Charles Weber; CRAIGHEAD-POINSETT, Glen E. Keller, John Kirkley; CRAWFORD, M. C. Edds; CRITTENDEN, David H. Pontius; DALLAS, Don G. Howard; DESHA, J. H. Hellums; FAULKNER, C. A. Archer, Jr.; FRANKLIN, David L. Gibbons; GARLAND, M. R. Springer, Jr., W. R. Mashburn; GREENE-CLAY, Omer E. Bradsher; HEMPSTEAD, Lynn Harris; HOT SPRING, R. V. McCray; INDEPENDENCE, John Grasse; JEFFERSON, Ross Maynard; Louis K. Hundley; JOHNSON, Guy Shrigley; LEE, D. W. Gray; PHILLIPS, L. J. P. Bell; POPE-YELL, Roy Millard; PULASKI, Winston Shorey, John McC. Smith, Purcell Smith, Tom Jansen, William Fulton, William G. Floyd, James Morrison, Robert Stainton, Gordon Oates; SEBASTIAN, A. S. Koenig, W. R. Brooksher, W. B. Stanton, A. C. Bradford; UNION, Paul

G. Henley, Kenneth R. Duzan; WASHINGTON, R. P. Edmondson; Thomas Gray; Morriss Henry; WHITE, J. R. Gardner. COUNCILORS Fairley, Ledbetter, Edwards, Townsend, Thomas, Burton, Wood, Kennedy, Kolb. Applegate, Fowler, Long, Whittaker, President Hyatt, Speaker Price, Vice Speaker Hundley, Secretary Shuffield, Treasurer Saltzman, Past Presidents Ellis, Verser, Snodgrass, Kolb, Brooksher, Monfort, Brown.

The speaker announced that a quorum was present.

The Speaker called for the report of the Nominating Committee. The committee chairman, James Morrison, presented the following proposed slate of officers.

for president-elect: L. A. Whittaker, Jr., Fort Smith
first vice president: Richard F. Graham, Hot Springs
second vice president: Joe B. Wharton, Jr., El Dorado
third vice president: J. Warren Murry, Fayetteville
treasurer: Ben N. Saltzman, Mountain Home
secretary: Elvin Shuffield, Little Rock
Speaker of the House of Delegates: John Price, Monticello

Vice Speaker of the House of Delegates:
Louis Hundley, Pine Bluff

Councilors—

1. Eldon Fairley, Osceola
2. Paul Gray, Batesville
3. Paul Millar, Stuttgart
4. T. E. Townsend, Pine Bluff
5. George Burton, El Dorado
6. Karlton Kemp, Texarkana
7. Jack Kennedy, Arkadelphia
8. W. Payton Kolb, Little Rock
9. Stanley Applegate, Springdale
10. C. C. Long, Ozark

Delegate to the AMA: J. W. Kennedy, Arkadelphia
Alternate delegate to the AMA: Alfred Kahn, Jr., Little Rock

Ross Fowler requested that his name be withdrawn and that the members of the House give their support and cooperation to Dr. Whittaker. Upon motion of Elvin Shuffield and A. S. Koenig, the House approved Dr. Fowler's withdrawal.

W. R. Brooksher moved that the entire slate of officers be elected by acclamation. Motion carried. Speaker Price introduced the new president-elect and Dr. Whittaker was escorted to the rostrum by Councilor George Burton.

Dr. Whittaker spoke briefly thanking the members of the House of Delegates for the honor bestowed upon him and requested their cooperation and assistance in the next two years. He emphasized that all members should think of the Society as "our" medical society—that no member should feel the Society is run by one small group. He noted that only about one third of the membership had attended the Annual Session and reiterated that now, more than any other time, the members should be united and work together for the good of the medical profession and the public. Dr. Whittaker urged all delegates to go back

to their local groups and urge the physicians to work for the good of the Society.

The chairman of the Nominating Committee, Dr. Morrison, then reported that A. S. Koenig of Fort Smith had been proposed for the position of councilor vacated by Dr. Whittaker's election to the office of president-elect. Dr. Morrison further stated that his committee wished to make the following recommendation to the House of Delegates:

"This Nominating Committee suggests to the House of Delegates that at the first annual meeting of each of the council districts, men be discussed for presentation as nominees for State Medical Society offices, to be submitted to the annual meeting of the Nominating Committee at the State Medical Society Meeting, and further, that these men be contacted to determine their willingness to serve in these respective offices."

Dr. Morrison urged the councilors to see that the election of State Society officers was discussed locally and that nominations were submitted in writing to the Nominating Committee.

Upon motion of Louis K. Hundley and James M. Kolb, the House unanimously elected Dr. Koenig to the position of tenth district councilor to fill the unexpired term of Dr. Whittaker.

Speaker Price called for the report of Reference Committee Number One. The committee chairman, Dr. William A. Snodgrass, presented the following report:

Report of Reference Committee No. 1

Reference Committee Number One met on Monday to consider committee reports as published in the March Journal as well as supplementary reports and resolutions presented at the first House of Delegates meeting on Sunday and referred to the Committee for consideration.

The Committee's recommendations on the items considered are as follows:

Supplemental Report of the President of the House of Delegates (Re: Compliance with Civil Rights Act). The Committee recommends that the report be discussed in the House of Delegates and a statement of policy be formed by the Society.

Report of the President on Foundations for Medical Care Plans (Article—"Shall We Lead or Follow") The Committee recommends that the matter be left in the hands of the Insurance Committee.

Report of the President to the House of Delegates of the Arkansas Medical Society. The Committee recommends that the report be read by the members of the House of Delegates and that attention be called to the diagnostic benefits which Blue Cross-Blue Shield has in its contract with the International Paper Company whereby diagnostic fees are paid to specialists only.

Resolution from Bradley County. The resolution was withdrawn because it was similar to other resolutions.

Resolutions introduced by Dr. Whittaker.

A. Re: Public Information

The Committee recommends that the resolution be referred to the Public Relations Committee of the Arkansas Medical Society.

- B. Re: Administration of federal program for medical care of aged. The Committee recommends that the resolution be presented to the House of Delegates with the modification of the addition of the words "Kerr-Mills" in the first sentence.

Sebastian County Resolution (introduced by Dr. Koenig). The resolution was withdrawn as being premature for presentation at this time.

Report of the National Legislation Committee. The Committee recommends that it be presented to the House of Delegates and that increased efforts against national legislation be instituted.

Sub-Committee on Rural Health. The Reference Committee recommends that it be accepted as published.

The Sub-Committee on Liaison with the State Board of Health. The Reference Committee recommends that the report be accepted as published.

Polio Advisory Sub-Committee. The Reference Committee recommends that the report be accepted as published.

Liaison Committee with Vocational Rehabilitation. The Reference Committee recommends that the report be accepted as published.

Committee on Medical Education. The Reference Committee recommends that the report be presented to the House of Delegates and accepted as presented with the following recommendation:

That pre-med high school and college counsel be slanted more toward subjects required for medical field.

Committee on Hospitals. The reference committee recommends that the report be accepted as published.

The report of the *Advisory Committee to the Arkansas State Medical Assistants Society.* The Reference Committee recommends acceptance as presented.

The Report of the Annual Session Committee. The Reference Committee recommends that the report be accepted with thanks to the committee.

The Report of the Sub-Committee on Liaison with Blue Cross-Blue Shield. The Reference Committee recommends the report be accepted as published.

The Liaison Committee with the Nursing Profession. The reference committee recommends that the report be accepted as published.

The reports of the First, Second, Seventh, and Eighth Councilor District Professional Relations Committees. The reference committee recommends that the reports be accepted as presented.

Report of the State Medical Board. The Reference Committee recommends that the report be approved as published.

Report of the Committee on Medical Legislation. The Reference Committee recommends approval as read.

Dr. Snodgrass requested discussion by Dr. Ellis concerning his reports. Dr. Ellis explained his position regarding the Civil Rights Act "compliance statement" and the Blue Shield contract with the International Paper Company.

Upon motion of Dr. Snodgrass, the House approved the report of Reference Committee Number one as read.

Dr. Ellis then requested clarification regarding the Reference Committee's recommendation regarding Dr. Whitaker's resolution on the public information program.

Dr. Snodgrass stated that it was the intent of the Reference Committee's recommendation to refer the matter to the Public Relations Committee for further study only.

Speaker Price then called for the report of Reference Committee Number Two and the chairman, Louis K. Hundley, presented the fol-

lowing report:

Report of Reference Committee No. 2

Reference Committee Number Two met on Monday to consider committee reports as published in the March Journal as well as supplementary reports and resolutions presented at the first House of Delegates meeting on Sunday and referred to the Committee for consideration.

The Committee's recommendations on the items considered are as follows:

Report of the Committee on Cancer Control. The Committee recommends approval.

Committee on Public Health. The Committee recommends approval.

Sub-Committee on Tuberculosis. The Committee approved the report and calls attention to the need for better orientation of community hospitals and physicians on the care of acute tuberculosis.

Sub-Committee on Mental Health. The Committee recommends approval of the report and commends the Sub-Committee on its activities. The Reference Committee also calls the attention of the House to the fact that better liaison is needed between the State Hospital and private physicians concerning the reporting of the diagnosis of patients, both on admission and discharge.

Traffic Safety Sub-Committee. The Reference Committee approved the report and commended the Committee for its activity. The Reference Committee also calls attention to the fact that Act 555 was passed with the help of our Legislative Committee at the recent session of the State Legislature.

Sub-Committee on Liaison with the Woman's Auxiliary. The Committee recommends approval.

Committee on Public Relations. Recommend approval of report and suggest that the Speakers Bureau could well become a sub-committee of the Committee on Public Relations and work closely together. This Committee is urged to present several concrete programs with varying price tags to be implemented during the coming year.

Sub-Committee on Liaison with the Women's Auxiliary. Recommend approval of the report.

Committee on Insurance. Recommend approval of the report and call attention to the coordination of benefits mentioned in this report as it affects the practice of physicians in Arkansas.

Arkansas Advisory Committee to the Selective Service System. Recommend approval.

Report of the Delegate to the American Medical Association, James M. Kolb. Approve the report and commend him for his activities and for the completeness of his report.

Budget Committee. Recommend that it be approved as presented.

Constitutional Revisions Committee. The report was approved with changes as marked below:

In the Amendment to the By-Laws, Chapter 9, Section 5, sub-paragraph (b) "Election of Censors", sub-paragraph (1) insert the following sentence:

"In societies of ten or less, the Society may act as Committee of the Whole in lieu of the Board of Censors."

Also, in the last paragraph of this same section, add the phrase:

"and no member may succeed himself".

In sub-paragraph (b) (2) of this same section, immediately before the last sentence, insert the phrase:

"no member may succeed himself".

In Section 5, paragraph (c) Board of Censors, at the close of the second paragraph, add:

"if a quorum of the Society is present at the time of voting".

Also in sub-paragraph (c), in the third paragraph, first sentence, following the word "conduct"; add:

"when they have reasonable grounds to suspect unethical conduct".

No other changes were made in this report.

Report of the Council as published in the March Journal. The Reference Committee recommends approval as printed.

Supplementary Report of the Council. Report read and committee recommends that it be approved.

Resolution No. 1 from Union County. No action. This is passed to the House of Delegates for consideration.

Resolution No. 2 from Union County. The Committee recommends that this resolution is disapproved by the House.

Resolution from Ouachita County Medical Society, regarding the MAA Program, is disapproved by the Committee.

Pulaski County Resolution concerning compulsory purchase of dinner and entertainment tickets is approved.

Upon motion of Hundley and Poff, the House approved the changes in the constitutional amendments which were proposed by the reference committee.

(See page 35 for proposed amendments as revised.)

Dr. Hundley then moved adoption of the Reference Committee report as read, second by Brooksher.

The delegate from Cleburne County requested a reading of the resolutions considered by the reference committee, and a delegate from Pulaski County requested a reading of the Budget Committee's recommendation concerning the proposed dues increase.

James M. Kolb made a substitute motion that the report of the Reference Committee be approved as read with the exception of those portions of the report regarding the two resolutions from Union County and the Budget Committee report. Second by Edmondson of Washington County; motion carried.

Dr. Hundley read resolution No. 1 from Union County (compliance with Civil Rights Act). After lengthy discussion, and upon the motion of Morris and Edmondson, the resolution was tabled, by vote of 44-30.

Dr. Hundley read resolution No. 2 from Union County (recommending that physicians not accept payment for services from federal funds), noting that the Reference Committee had recommended its disapproval. He then moved that the House disapprove the resolution, second by Payton Kolb; motion carried. There were several dissenting votes.

Dr. Hundley read the Budget Committee's proposal to the Council for the information of the House of Delegates, and emphasized that the Reference Committee recommended approval of

the report. After lengthy discussion, and upon motion of Townsend and Koenig, they approved the reference committee recommendation, thus approving a \$30 per year dues increase to become effective January 1, 1966, making a total of \$75 State dues. There were sixty votes favoring the increase and twelve dissenting votes.

The chairman of the Council, Dr. H. W. Thomas, presented the following report:

Second Supplementary Report of the Council

The Council met on Sunday, April 25th, and transacted the following business:

1. Approved the following list of members for dues exemption:

Affiliate Membership

M. C. Crandall	E. J. Brown	Henry H. Good
Rex Williams	A. F. Barr	Harold Hawley
H. K. Carrington	E. J. Chaffin	Rosemary C.
A. J. Souter	H. A. Murphy	Murray
George B. Alcott	W. L. Newton	Wayne Reynolds
Howard Rands	H. L. Boyer	Sidney W. Arnold
H. T. Smith	Joseph Delaney	Thell Arrington
J. H. Downs	W. A. Fowler	James M.
Howell Brewer	Allan A. Gilbert	Kolb, Jr.
Paul Jeffery	Paul R. Lanier	Cal D. Gunter
Byron Bennett	Walter S. Guinee	Evelyn Jones
J. Nye Compton	Lee A. Dean	Calvin Churchill
Ellery C. Gay, Sr.	H. K. Baldrige	J. B. Hesterly
James D. Hayes	Warren Douglas	William B.
Glenn Johnson	R. H. Harrison	Connolly
Harold N. Miller	Wayne B. Glenn	S. T. W. Cull
W. M. McRae	James B. Files	Bryce Cummins
James M. Nisbett	M. L. Godley	Victor Ferrari
Grady W. Reagan	Charles A.	Benjamin D. Luck
Frances Rothert	Hesterly	Virgil Payne
A. M. Washburn	Ellery C. Gay, Jr.	Hugh S. McMahan

Life Membership

Joseph G. Gladden	J. A. Martin
T. S. Hare	Jesse E. Stevenson
L. C. McVay	S. P. McConnell

2. Heard a report by the Executive Committee on a conference with the State Welfare Commissioner regarding the Civil Rights Compliance Statement circulated to all members of the Medical Society. It was reported that the Welfare Commissioner stated that at this time doctors were not going to be asked to sign the statement.
3. Nominated Dr. Henry Hearnberger of Stephens to succeed himself as an Arkansas Medical Society representative on the Board of Trustees of Blue Cross-Blue Shield.
4. Re-nominated Dr. Paul Hughes to succeed himself as the sixth district representative on the Arkansas State Arbitration Commission.
5. Elected Dr. John Olson to succeed himself on the Arbitration Commission for the Tenth district.
6. Considered resolutions from Union and Jefferson Counties concerning signing of a Civil Rights Compliance statement and refusal to participate financially in various federal medical care programs. The Council voted to refer the resolutions to the House of Delegates.
7. Referred to the House of Delegates with the Council's

approval a resolution proposing that the State Medical Society and the American Medical Association initiate a program of public information on a repeated sustaining basis through the purchase of time and/or space through the various news media.

8. Referred to the House of Delegates with Council approval a resolution recommending that, in the event of the passage of a federal health care program such as proposed in H.R. 6675, the State Board of Health be named the administrative agency.
9. Referred to the House of Delegates with recommendation for approval a resolution that, in the event H.R. 6675 becomes law, the voluntary medical insurance portion be administered by Blue Shield both nationally and locally.

The Council met on Monday and took the following actions:

1. Accepted the proposal by Dr. Joe Verser that he be replaced as chairman of the Speakers Bureau by Dr. Tom Jansen. Dr. Verser agreed to continue to serve in the capacity of vice chairman.
2. Dr. Louis K. Hundley reported on the negotiations with the Veterans Administration on a contract for out-patient care. Dr. Hundley stated that the committee was successful in getting the Veterans Administration to agree to a unit value of \$5 for all fields, based on the California Relative Value Scale. The Council voted to accept the new contract.
3. Dr. Bascom P. Raney was elected to the Professional Relations Committee from the first district. Dr. Raney was also elected to serve on the Arbitration Commission from that district.
4. Directed the Executive Vice President to compile and produce, with the assistance of the Society's legal counsel, a booklet of information for physicians beginning practice — an initial distribution of the booklet to be made to all members of the Medical Society.
5. After discussion of the possibilities of defeating H.R. 6675 in the Senate, the Council voted to send a selected group of physicians to Washington to confer with Senator Fulbright to attempt to enlist his help in defeating the bill.

The Council met on Tuesday and transacted the following business:

1. Appointed Drs. Randolph Ellis, Joe Norton, and William Payton Kolb as a resolutions committee to draw up appropriate resolutions.
2. Voted to delegate to the Executive Committee the responsibility of working toward having an appropriate number of Medical Society members appointed to the new Hospital Advisory Council.
3. Regarding the handling of cytology tests for family planning centers, the Council heard discussions by representatives of the pathologists of the State, the State Health Department and the Medical Center. The Council approved an agreement between the three agencies that the State Health Department and the local clinician will contact the local pathologist and reach an agreement as to how many tests the local pathologists will do without fee. The remainder of specimens from the local clinic will be sent direct to the Medical Center for processing where a fee of \$3.00 per specimen will be charged to the State Health Department.
4. Directed the chairman of the Council to write the Governor of Arkansas urging the appointment of a physician to the University of Arkansas Board of Trustees.

Upon the motion of Thomas and Louis K.

Hundley, the House approved the report.

The chairman of the Resolutions Committee, C. R. Ellis presented resolutions as follows:

Appreciation

WHEREAS, the Arkansas Medical Society received courteous, careful and fair consideration from the Press, the Radio and Television, during our sessions, and their cooperation did much to make our 89th Annual Session a success, and

WHEREAS, the management of the Marion Hotel and the Robinson Auditorium have facilitated our efforts in every way, and

WHEREAS, the Pulaski County Society, and the individual members thereof, and particularly the ladies' committees, have been gracious hosts, and have contributed greatly to our enjoyment, and

WHEREAS, the Rebsamen Golf Course has been most generous in making its golf course available for the Golf Tournament, and

WHEREAS, distinguished guests from beyond our borders, who have appeared on our program, have added very greatly to the worth of our meeting, and we have benefited from the lessons which they have shared with us, and

WHEREAS, the hours of thought devoted by the Committee on Arrangements for the Annual Session have been greatly rewarding, and have borne fruit in a program of outstanding worth, and

WHEREAS, study and other effort was given by our scientific exhibitors, resulting in exhibits that have been instructive, and were greatly enjoyed, and

WHEREAS, the commercial exhibitors were of great benefit to our gatherings and the courteous and careful attention of the attendants was quite helpful,

NOW, THEREFORE, BE IT RESOLVED that the Arkansas Medical Society records its sincere appreciation, and expresses its heartfelt thanks to our host city, and those heretofore mentioned, for the cordial welcome, the extension of unbounded hospitality, the expression of good will and kindly feelings shown each member of the Society, who has been privileged to attend this session. We shall ever hold in pleasant memory the hours spent as their guests during the last several days.

Resolution in Opposition to Social Security Coverage of Physicians

WHEREAS, House Bill 6675 has passed the House of Representatives in the Congress of the United States and is now pending before the Senate, and

WHEREAS, House Bill 6675 amends the Old Age and Survivors Insurance Program so as to provide mandatory and compulsory social security coverages for physicians, including interns and residents, and

WHEREAS, one out of every 11 doctors in the United States is 65 years of age or older, and

WHEREAS, eighty-five percent of physicians now aged 65 to 72 are in the active practice of medicine, and

WHEREAS, this age group of physicians provides medical care for at least 11 million Americans, and

WHEREAS, if these physicians retire at the age of 65, a catastrophic shortage of doctors would necessarily result, and

WHEREAS, physicians prefer the privilege of establishing retirement benefits for themselves on a voluntary basis, and

WHEREAS, the members of the Arkansas Medical Society have heretofore overwhelmingly indicated their opposition to inclusion in the social security program by a ratio of 8 to 1 and continue their opposition thereto by repeated action by this House of Delegates,

NOW, THEREFORE BE IT RESOLVED that this House of Delegates reaffirm its opposition to compulsory social security coverage for physicians, including interns and residents, and

BE IT FURTHER RESOLVED that a copy of this resolution be transmitted to the Senators John McClellan and William Fulbright, and to Representatives Wilbur D. Mills, Oren Harris, E. C. Gathings, and James W. Trimble.

Resolution Recommending Amendments in HB 6675

WHEREAS, House Bill 6675 has passed the House of Representatives in the Congress of the United States and is now pending before the Senate, and

WHEREAS, House Bill 6675 provides for a hospital program financed through the social security system, a federally administered medical insurance program and various other health care amendments to the Old Age and Survivors Insurance program, and

WHEREAS, the medical profession strongly advocates that the hospital and medical care program should be directed toward those people who are over 65 who need help, that the administration of such program be by the several States rather than federally administered, and that the maximum use be made of private carriers and voluntary health insurance on a prepayment principle, and

WHEREAS, the medical profession strongly opposes a payroll tax on the working man to pay for free health care for those who are not in need, and

WHEREAS, the medical profession believes that every person should receive the best medical care regardless of his ability to pay,

NOW, THEREFORE BE IT RESOLVED that the Arkansas Medical Society strongly advocates that House Bill 6675 be amended to provide for:

1. Medical care for those over 65 who are in need of help,
2. The program being administered by the States rather than the Federal Government, and
3. Maximum use being made of private carriers and the voluntary health insurance on a prepayment principle, and

BE IT FURTHER RESOLVED that a copy of this resolution be transmitted to all of the members of the Arkansas Congressional delegation, and to Senator Harry F. Byrd, Chairman of the Finance Committee of the United States Senate.

Resolution Regarding Dr. L. H. McDaniel

WHEREAS, God in his wisdom has taken from us one of our faithful fellow physicians, Dr. L. H. McDaniel, and

WHEREAS, Dr. McDaniel was one of our most esteemed leaders and during his lifetime was often chosen by our society for positions of trust and was a past president of the society, and

WHEREAS, Dr. McDaniel served his State faithfully not only as a physician but also through public service to his fellowman,

THEREFORE, BE IT RESOLVED, that the House of Delegates of the Arkansas Medical Society express to his family the esteem in which he was held by the entire community and the heartfelt loss that has been sustained;

BE IT FURTHER RESOLVED that the devotion of Dr. McDaniel to his profession, his patients, and his fellowman will remain as an inspi-

ration to the members of the Arkansas Medical Society;

BE IT FURTHER RESOLVED that a copy of this resolution be sent to Dr. McDaniel's family and a copy be published in the Journal of the Arkansas Medical Society.

Resolution Regarding Dr. S. J. Albright

WHEREAS, the power greater than ourselves has deemed it necessary to take from us one of our faithful fellow physicians; we, the members of the Arkansas Medical Society mourn the loss of Dr. S. J. Albright, and

WHEREAS, Dr. Albright was one of our most distinguished members and a past president of this Society, and

WHEREAS, Dr. Albright's contribution to the well-being of many people in this State, both as a physician and a leading citizen, will be long remembered and appreciated, and

WHEREAS, his death has saddened all who knew him,

THEREFORE, BE IT RESOLVED that we, the Arkansas Medical Society, pause here at this meeting with respect to his memory and officially adopt this resolution;

THEREFORE, BE IT FURTHER RESOLVED, that the Arkansas Medical Society express to his family the esteem in which he was held; and the heartfelt loss that has been sustained;

BE IT FURTHER RESOLVED that a copy of this resolution be sent to his family and to the Journal of the Arkansas Medical Society.

Resolution Regarding Mrs. Karlton Kemp

WHEREAS, God in his infinite wisdom has seen fit to take from this life Mrs. Karlton Kemp, wife of our councilor from the sixth district, and

WHEREAS, Mrs. Kemp was a kind, devoted wife and mother and had served faithfully as a member of her church and her community, and

WHEREAS, Mrs. Kemp was an active member of the Woman's Auxiliary to the Arkansas Medical Society, and

WHEREAS, the members of the Arkansas Medical Society are sorrowed by her departure,

NOW, THEREFORE, BE IT RESOLVED that we extend our deepest sympathy to Dr. Kemp and his children, and

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to Dr. Kemp and that it be incorporated in the minutes of this meeting.

All resolutions were approved.

The delegate from Sebastian County, W. B. Stanton, extended an invitation to the Society to hold its 91st Annual Session in Fort Smith in 1967. Upon second by Townsend, the House unanimously accepted the invitation.

Speaker Price announced that the members of the Third Congressional District had nominated Ross Fowler of Harrison for the position on the Arkansas State Medical Board which will be created by the expiration of the term of Dr. H. J. Hall of Clinton on December 31, 1965. Upon motion of Kolb and Applegate, the House approved the nomination.

Speaker Price announced that the members of the First Congressional District had nominated the following physicians for the position on the Arkansas State Board of Health from that district:

- Dr. Charles G. Swingle, Marked Tree
- Dr. Milton Deneke, West Memphis
- Dr. John Kirkley, Jonesboro

Upon motion of Keller and Fairley, the House approved the nominations.

Speaker Price announced that the officers were to assemble for a group photograph immediately following the House of Delegates meeting and that the Council would hold a brief meeting.

The House adjourned at 12:20 p.m.

REGISTRATION

Physicians	377
Medical Students	22
Medical Society Executives	4
Auxiliary members, medical assistants, other guests	67
Exhibitors	142

Total	612

OFFICERS OF THE ARKANSAS MEDICAL SOCIETY 1965-1966

President	C. Lewis Hyatt, Monticello
President-elect	L. A. Whittaker, 621 South 21st, Fort Smith
First Vice President	Richard F. Graham, 236 Central, Hot Springs
Second Vice President	Joe B. Wharton, Jr., 516 West Faulkner, El Dorado
Third Vice President	J. Warren Murray, 1749 North College, Fayetteville
Secretary	Elvin Shuffield, 1000 Wolfe, Little Rock
Secretary Emeritus	W. R. Brooksher, Box 3488, Station A, Fort Smith
Treasurer	Ben N. Saltzman, Mountain Home
Speaker, House of Delegates	John P. Price, Monticello
Vice Speaker of House	Louis K. Hundley, P.O. Box 1521, Pine Bluff
Journal Editor	Alfred Kahn, Jr., 1300 West Sixth, Little Rock
Delegates to AMA	James M. Kolb, Clarksville; Jack Kennedy, Arkadelphia
Alternate Delegates to AMA	C. C. Long, Ozark; Alfred Kahn, Jr., Little Rock
Executive Vice President	Mr. Paul C. Schaefer, P.O. Box 1208, Fort Smith

EXECUTIVE COMMITTEE OF THE COUNCIL

Chairman of the Council	H. W. Thomas, Dermott, Chairman
President	C. Lewis Hyatt, Monticello
President-elect	L. A. Whittaker, 621 South 21st, Fort Smith
Secretary	Elvin Shuffield, 1000 Wolfe, Little Rock

COUNCILORS

District	Councilor Term Expires '66	Councilor Term Expires '67	Counties in District
1.	Paul Ledbetter Jonesboro	Eldon Fairley Osceola	Clay, Craighead, Crittenden, Fulton, Greene, Lawrence, Mississippi, Poinsett, Randolph, and Sharp
2.	Hugh R. Edwards Searcy	Paul Gray Batesville	Cleburne, Conway, Faulkner, Independence, Izard, Jackson, Stone, and White
3.	L. J. P. Bell Helena	Paul Millar Stuttgart	Arkansas, Cross, Lee, Lonoke, Monroe, Phillips, Prairie, St. Francis, and Woodruff
4.	H. W. Thomas Dermott	T. E. Townsend 1310 Cherry Pine Bluff	Ashley, Chicot, Desha, Drew, Jefferson, and Lincoln
5.	Perry Dalton 415 Hospital Drive Camden	George C. Burton 427 West Oak El Dorado	Bradley, Calhoun, Cleveland, Columbia, Dallas, Ouachita, and Union
6.	John P. Wood Mena	Karlton H. Kemp 408 Hazel Texarkana	Hempstead, Howard, Lafayette, Little River, Miller, Nevada, Pike, Polk, and Sevier
7.	Robert F. McCrary 238 Woodbine Hot Springs	Jack Kennedy Arkadelphia	Clark, Garland, Grant, Hot Spring, Montgomery, and Saline
8.	Joseph A. Norton 5408 Centerwood Little Rock	Payton Kolb 1120 Marshall Little Rock	Pulaski
9.	Ross Fowler Harrison	Stanley Applegate Springdale	Baxter, Benton, Boone, Carroll, Madison, Marion, Newton, Searcy, Van Buren, and Washington
10.	A. S. Koenig 922 Lexington Fort Smith	C. C. Long Ozark	Crawford, Franklin, Johnson, Logan, Perry, Pope, Scott, Sebastian, and Yell

COMMITTEES

Arkansas Medical Society

1965 - 1966

COMMITTEE ON CANCER CONTROL Term Expires:

Edward M. Cooper, 224 East Matthews, Jonesboro	1966
Glenn P. Schoettle, 308 South Rhodes, West Memphis	1966
Robert K. Paul, 1525 Reed, Malvern	1967
Thomas F. Dilday, Jr., 500 South University, Little Rock, CHAIRMAN	1967
Julius Hellums, 129 West Waterman, Dumas	1968
J. B. Holder, 814 North Main, Monticello	1968

COMMITTEE ON MEDICAL LEGISLATION

Elvin Shuffield, 1000 Wolfe, Little Rock, CHAIRMAN	1966
Gilbert D. Jay, 200 South Rhodes, West Memphis	1966
Karlton H. Kemp, 408 Hazel, Texarkana	1966
John P. Wood, 907 Mena, Mena	1967
Paul A. Wallick, 216 South Main, Monticello	1967
C. A. Archer, Jr., 919 Locust, Conway	1967
Ross E. Maynard, National Building, Pine Bluff	1968
Neil E. Compton, Box 209, Bentonville	1968
Garland D. Murphy, Jr., 304 East Peach El Dorado	1968

SUB-COMMITTEE ON NATIONAL LEGISLATION

Kenneth R. Duzan, 443 West Oak, El Dorado	1966
John C. Faris, 211 East Washington, Jonesboro	1966
Joe Verser, Box 106, Harrisburg	1967
Neil E. Crow, 1500 Dodson, Fort Smith	1967
George F. Wynne, 202 West Cypress, Warren	1968
Dale Alford, 115 West Capitol, Little Rock, CHAIRMAN	1968

COMMITTEE ON PUBLIC HEALTH (Rural Health)

Ben N. Saltzman, 126 West 6th, Mountain Home, CHAIRMAN	1966
Vestal B. Smith, Marked Tree	1966
Guy U. Robinson, 207 South Elm, Dumas	1967
Clarence Glenn, 1500 Dodson, Fort Smith	1967
C. C. Long, Ozark	1968
C. A. Archer, Jr., 919 Locust, Conway	1968
Benjamin C. Hyatt, Perryville	1968

SUB-COMMITTEE ON LIAISON WITH THE STATE BOARD OF HEALTH

Hugh R. Edwards, 607 Woodruff, Searcy	1966
Robert W. Ross, 4316 West Markham, Little Rock	1967
H. H. Atkinson, Fordyce	1968
Perry J. Dalton, 415 Hospital Drive, S.W., Camden	1968
Charles G. Swingle, Marked Tree CHAIRMAN	1968

SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE

J. Travis Crews, 4316 West Markham, Little Rock	1966
Thomas E. Townsend, 1310 Cherry, Pine Bluff, CHAIRMAN	1967
James T. Rhyne, 1310 Cherry, Pine Bluff	1968
Harlan H. Hill, 1120 Marshall, Little Rock	1968

SUB-COMMITTEE ON TUBERCULOSIS

Harley C. Darnall, 500 Lexington, Fort Smith, CHAIRMAN	1966
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Wayne W. Flora, Box 123, Alexander	1966
Ben M. Lincoln, 5322 West Markham, Little Rock	1967

Albert W. Lazenby, 135 West Waterman, Dumas	1967
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W. Paul Reagan, State Health Building Little Rock	1968
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Charles C. Tracy, 1421 Cherry, Pine Bluff	1968
Joseph G. Shelton, Jr., Ashdown	1968

SUB-COMMITTEE ON AGING

James M. Kolb, Sr., P.O. Box 472, Clarksville	1966
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Don G. Howard, Fordyce	1966
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Charles F. Wilkins, 511 West Main, Russellville	1967
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Paul G. Henley, 700 West Faulkner, El Dorado	1967
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Van C. Binns, 201 East Trotter, Monticello	1968
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John F. Guenthner, 126 West 6th, Mountain Home, CHAIRMAN	1968
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SUB-COMMITTEE ON PHYSICAL FITNESS AND SCHOOL HEALTH

Jack W. Kennedy, 1008 Pine, Arkadelphia, CHAIRMAN	1966
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Marion Jack Henry, 810 West 2nd, Little Rock	1967
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Gerald K. Patton, 100 North 16th, Fort Smith	1968
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Edwin L. Dunaway, 919 Locust, Conway	1968
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SUB-COMMITTEE ON INDUSTRIAL HEALTH

William L. Steele, 5520 West Markham, Little Rock	1966
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John D. Olson, 1500 Dodson, Fort Smith	1966
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Milton D. Deneke, 300 South Rhodes, West Memphis	1967
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Hunter A. Causey, Cotton Belt Railroad Hospital, Texarkana	1968
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Virgil B. Perry, 1019 Cherry, Pine Bluff, CHAIRMAN	1968
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Claude F. Peters, 1420 Potts, Malvern	1968
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SUB-COMMITTEE ON MENTAL HEALTH

W. Payton Kolb, 1120 Marshall, Little Rock	1966
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Julian L. Foster, 3901 New Benton Highway Little Rock	1966
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Julian Fairley, 616 West Lee, Osceola	1966
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W. O. Young, 112½ East 7th, Little Rock, CHAIRMAN	1967
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Henry G. Hearnberger, Stephens	1967
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William H. Breit, 707 North Vine, Harrison	1967
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William C. Whaley, 203 East Church, Warren	1968
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Samuel D. Watson, 421 West Kingshighway, Paragould	1968
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POLIO ADVISORY SUB-COMMITTEE

Thomas E. Townsend, 1310 Cherry, Pine Bluff	1966
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Charles E. Kemp, 809 Cobb, Jonesboro	1966
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W. W. Workman, 527 North 6th, Blytheville	1967
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Harry Hayes, Jr., Donaghey Building, Little Rock	1967
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Wilbur G. Lawson, 207 East Dickson, Fayetteville, CHAIRMAN	1968
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Howard R. Harris, 207 South Elm, Dumas	1968
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SUB-COMMITTEE ON TRAFFIC SAFETY

Louise Henry, 602 Garrison, Fort Smith Chairman	1966
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James G. Stuckey, 500 South University, Little Rock	1966
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Hugh R. Edwards, 607 Woodruff, Searcy	1966
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Joe W. Reid, 618 Caddo, Arkadelphia	1966
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J. B. Cross, 500 South University, Little Rock	1967
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C. E. Crawley, P. O. Box 787, Forrest City	1967
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W. R. Cothorn, Crossett Health Center, Crossett	1967	SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE	
Lonnie R. Turney, 2nd and Pine Streets, McGehee	1968	James A. Johnson, 112 North Bailey, Jacksonville	1966
SUB-COMMITTEE ON LIAISON WITH VOCATIONAL REHABILITATION		Quin M. Baber, 212 West Sevier, Benton	1967
Robert H. Atkinson, 236 Central, Hot Springs	1966	Monroe D. McClain, 1120 Marshall, Little Rock, <i>Chairman</i>	1968
Raymond V. McCray, 214 East Highland, Malvern, <i>Chairman</i>	1966	Edgar J. Easley, State Health Department, Little Rock	1968
U. Lee Smith, Mineral Springs Highway, Nashville	1966	L. U. Rushing, P. O. Box 1912, Texarkana	1968
Frank G. Kumpuris, 415 North University, Little Rock	1967	Russell W. Cobb, 1420 Potts, Malvern	1968
E. Frank Reed, Jr., 916 Cherry, Pine Bluff	1967	ADVISORY SUB-COMMITTEE TO THE MEDICAL ASSISTANTS SOCIETY	
W. M. Hamilton, Donaghey Building, Little Rock	1967	Joseph A. Norton, 5408 Centerwood, Little Rock	1966
Major E. Smith, Dermott	1968	Willie R. Harris, Harris Hospital, Newport, <i>Chairman</i>	1967
Paul G. Henley, 700 West Faulkner, El Dorado	1968	Karlton H. Kemp, 408 Hazel, Texarkana	1968
W. J. Stocker, Block & Dickson, Fayetteville	1968	John W. Dorman, Springdale Clinic, Springdale	1968
COMMITTEE ON MEDICAL EDUCATION		Doris A. Baldridge, Heber Springs	1968
W. H. Calaway, North Arkansas Clinic, Batesville	1966	Guy P. Shrigley, 416 Sevier, Clarksville	1968
James W. Hawley, P.O. Box 38, Camden	1966	A. R. Clowney, 312 Thompson, El Dorado	1968
Lee B. Parker, Wolfe Building, McGehee, <i>Chairman</i>	1967	COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION	
George K. Mitchell, 900 North University, Little Rock	1967	Thomas E. Burrow, 236 Central, Hot Springs	1966
Winston K. Shorey, 4301 West Markham, Little Rock	1968	Guy R. Farris, 810 West 2nd, Little Rock	1966
Oliver C. Raney, 1021 Cherry, Pine Bluff	1968	C. Randolph Ellis, 1004 South Main, Malvern	1966
SUB-COMMITTEE ON POSTGRADUATE EDUCATION		Thomas E. Townsend, 1310 Cherry, Pine Bluff	1967
George F. Wynne, 202 West Cypress, Warren, <i>Chairman</i>	1966	Hal R. Black, Jr., Donaghey Building, Little Rock	1967
Eli Gary, 137 North 6th, Arkadelphia	1967	Amail Chudy, 1801 Maple, North Little Rock	1967
James S. Taylor, 4301 West Markham, Little Rock	1968	John V. Busby, 5008 Kavanaugh, Little Rock, <i>Chairman</i>	1968
James K. Patrick, 241 West Spring, Fayetteville	1968	Art B. Martin, 1500 Dodson, Fort Smith	1968
Albert R. Hammon, 205 West Rush, Harrison	1968	Joseph S. Robinette, 1115 Cherry, Pine Bluff	1968
John T. Riffin, 4301 West Markham, Little Rock	1968	Betty Ann Lowe, 401 East 5th, Texarkana	1968
COMMITTEE ON HOSPITALS		COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS	
Wright Hawkins, 100 South 14th, Fort Smith	1966	Chalmers S. Pool, V.A. Hospital, North Little Rock	1966
M. H. Harris, 3rd and Hazel, Newport	1966	Rex N. Moore, 1000 West Main, Jacksonville	1967
Herbert B. Wren, 619 Main, Texarkana	1967	N. W. Riegler, Jr., 1024 Scott, Little Rock	1968
Joseph A. Buchman, 500 South University, Little Rock, <i>Chairman</i>	1967	John H. Delamore, 1100 West 3rd, Fordyce	1968
George B. Talbot, 1421 Cherry, Pine Bluff	1968	Friedman Sisco, Springdale, <i>Chairman</i>	1968
John P. Wood, 907 Mena, Mena	1968	T. J. Raney, 924 Marshall, Little Rock	1968
COMMITTEE ON PUBLIC RELATIONS		COMMITTEE ON INSURANCE	
A. E. Andrews, 320 South 10th, Paragould	1966	Guy R. Farris, 810 West 2nd, Little Rock	1966
Garland Murphy, Jr., 304 East Peach, El Dorado	1966	Russell W. Cobb, 1420 Potts, Malvern	1966
Paul L. Rogers, Box 3188, Station A, Fort Smith	1967	Thomas D. Honeycutt, 509 Cross, Little Rock, <i>Chairman</i>	1967
G. Thomas Jansen, 500 South University, Little Rock	1967	Howard Monroe, Mountain View	1967
Gordon P. Oates, 1710 West 10th, Little Rock, <i>Chairman</i>	1968	John D. Clower, 1149 West Walnut, Rogers	1968
Paul A. Wallick, 216 South Main, Monticello	1968	Wayne G. Pullen, 421 West Gilson, DeQueen	1968
SUB-COMMITTEE ON LIAISON WITH AUXILIARY		SUB-COMMITTEE ON LIAISON WITH BLUE CROSS-BLUE SHIELD	
John M. Samuel, 805 West 4th, Little Rock		A. S. Koenig, 922 Lexington, Fort Smith, <i>Chairman</i>	1966
J. P. Price, 216 South Main, Monticello	1966	Orval E. Riggs, 806 Jeter Drive, Jonesboro	1966
W. A. Snodgrass, Jr., Donaghey Building, Little Rock	1966	W. T. Rainwater, 527 North 6th, Blytheville	1967
Roy I. Millard, 511 West Main, Russellville	1966	W. C. Whaley, 203 East Church, Warren	1967
James W. Branch, 426 South Main, Hope, <i>Chairman</i>	1966	J. B. Jameson, Jr., 110 Harrison, S.W., Camden	1968
F. E. Utley, 515 North 6th, Blytheville	1966	Charles W. Reid, 1113 Cherry, Pine Bluff	1968
Charles F. Wilkins, 511 West Main, Russellville	1966	COMMITTEE ON CONSTITUTIONAL REVISION	
		Council Committee	
		Louis K. Hundley, P.O. Box 1521, Pine Bluff, <i>Chairman</i>	
		H. W. Thomas, Dermott	
		John M. Hundley, 412 Cross, Little Rock	
		W. J. Butt, 316 West Dickson, Fayetteville	
		H. King Wade, Jr., 231 Central, Hot Springs	

PROCEEDINGS

BUDGET COMMITTEE	Council Committee
W. R. Brooksher, Box 3488, Station A, Fort Smith, <i>Chairman</i>	
Louis K. Hundley, P. O. Box 1521, Pine Bluff	
Ben N. Saltzman, Mountain Home	
SENIOR MEDICAL DAY COMMITTEE	Council Committee
Bill Dave Stewart, 415 North University, Little Rock, <i>Chairman</i>	
Calvin R. Simmons, 1002 West 14th, Pine Bluff	
Wayne P. Jones, Berryville	
SPECIAL FEE COMMITTEE	Council Committee
Louis K. Hundley, P.O. Box 1521, Pine Bluff, <i>Chairman</i>	
James M. Kolb, P.O. Box 472, Clarksville	
J. J. Monfort, Batesville	
Jerome Levy, 500 South University, Little Rock	
Charles Reid, 1113 Cherry, Pine Bluff	
SUB-COMMITTEE ON LIAISON WITH THE NURSING PROFESSION	
Clarence L. Glenn, 1500 Dodson, Fort Smith, <i>Chairman</i>	1966
Bob G. Banister, 1300 Parkway, Conway	1966
W. Myers Smith, 3421 "A" Pike Street, North Little Rock	1967
David H. Pontius, Jr., 300 South Rhodes, West Memphis	1967
A. D. Tisdale, Jr., 1515 West 42nd, Pine Bluff	1968
Glenn G. Hairston, 317 East 3rd, Prescott	1968
LIAISON COMMITTEE WITH STATE WELFARE DEPARTMENT	Council Committee
C. Lewis Hyatt, Monticello	
L. A. Whittaker, 621 So. 21st, Fort Smith	

Elvin Shuffield, 1000 Wolfe, Little Rock	
H. W. Thomas, Dermott	
COMMITTEE ON MEDICINE AND RELIGION	
Joseph A. Norton, 5408 Centerwood, Little Rock, <i>Chairman</i>	
Jack W. Kennedy, 1008 Pine, Arkadelphia	
John V. Busby, 5008 Kavanaugh, Little Rock	
William S. Orr, Jr., 500 South University, Little Rock	1967
Kenneth A. Siler, 707 North Vine, Harrison	1968
LONG RANGE PLANNING COMMITTEE	
Thomas H. Wortham, 1000 West Main, Jacksonville, <i>Chairman</i>	
Glen F. Baker, St. Bernard's Hospital, Jonesboro	
Robert B. Benafield, 919 Locust, Conway	
Carl Northcutt, Route 1, Box 21-D, Stuttgart	
Lee B. Parker, Wolfe Building, McGehee	
Berry L. Moore, Jr., 108½ North Washington, El Dorado	
Robert M. Bransford, 401 East 5th, Texarkana	
Martin Eisele, 101 Whittington, Hot Springs	
George K. Mitchell, 900 North University, Little Rock	
Arthur Moore, 675 Lollar Lane, Fayetteville	
Neil E. Crow, 1500 Dodson, Fort Smith	
MEDICAL SOCIETY REPRESENTATIVES ON HOSPITAL-INSURANCE-PHYSICIAN COMMITTEE	
Calvin Austin, Mena	
Lee B. Parker, McGehee	
Jean Gladden, Harrison	
A. E. Andrews, Paragould	
Guy Farris, 810 West 2nd, Little Rock	
Thomas D. Honeycutt, 509 Cross, Little Rock	

1965 OFFICERS — COUNTY MEDICAL SOCIETIES — ARKANSAS MEDICAL SOCIETY

ARKANSAS	Pres.—Francis M. Henderson, Stuttgart Secy.—John Hestir, DeWitt
ASHLEY	Pres.—C. E. Hicks, Hamburg Secy.—C. E. Ripley, Crossett
BAXTER	Pres.—Maxwell Cheney, Mountain Home Secy.—Ben N. Saltzman, Mountain Home
BENTON	Pres.—Grier D. Warren, Rogers Secy.—L. G. Pillstrom, Rogers
BOONE	Pres.—W. A. Hudson, Harrison Secy.—Joe Bill Wilson, Harrison
BRADLEY	Pres.—W. C. Whaley, Warren Secy.—George F. Wynne, Warren
CHICOT	Pres.—Thomas C. Wilson, Dermott Secy.—Major E. Smith, Dermott
CLARK	Pres.—L. B. Tilley, Arkadelphia Secy.—L. G. Walker, Arkadelphia Executive Secy.—Mr. Howard Campbell, Clark County Hosp., Arkadelphia
CLEBURNE	Pres.—W. M. Wells, Heber Springs Secy.—Michael E. Barnett, Heber Springs
COLUMBIA	Pres.—John L. Ruff, Magnolia Secy.—Charles Weber, Magnolia
CONWAY	Pres.—Thomas H. Hickey, Morrilton Secy.—H. B. White, Morrilton
CRAIGHEAD-POINSETT	Pres.—Durwood Wisdom, 411 E. Matthews, Jonesboro Secy.—H. W. Keisker, 804 Jeter Drive, Jonesboro
CRAWFORD	Pres.—Ed G. Hopkins, Van Buren Secy.—Jack N. Thicksten, Alma

PROCEEDINGS

CRITTENDEN	Pres.—David H. Pontius, West Memphis Secy.—James R. Fall, West Memphis
CROSS	Pres.—Thomas G. Price, Wynne Secy.—K. E. Beaton, Wynne
DALLAS	Pres.—Harry H. Atkinson, Fordyce Secy.—Don G. Howard, Fordyce
DESHA	Pres.—O. G. Blackwell, Dumas Secy.—Howard R. Harris, Dumas
DREW	Pres.—J. B. Holder, Monticello Secy.—Paul A. Wallick, Monticello
FAULKNER	Pres.—Sam Daniel, Conway Secy.—Fred Gordy, Conway
FRANKLIN	Pres.—J. Laurence Jones, Ozark Secy.—David L. Gibbons, Ozark
GARLAND	Pres.—Richard F. Graham, 236 Central, Hot Springs Secy.—A. J. Yates, 211 Hobson, Hot Springs
GRANT	Pres.—Jack M. Irvin, Sheridan Secy.—Miles F. Kelly, Sheridan
GREENE-CLAY	Pres.—Frank Isele, Piggott Secy.—Asa Crow, Cardwell, Missouri
HEMPSTEAD	Pres.—Forney Holt, Hope Secy.—James A. Spring, Hope
HOT SPRING	Pres.—Robert K. Paul, Malvern Secy.—George Rosenthal, Jr., Malvern
HOWARD-PIKE	Pres.—J. H. Wesson, Nashville Secy.—M. H. Wilmoth, Nashville
INDEPENDENCE	Pres.—Chaney Taylor, Batesville Secy.—Joseph Farmer, Batesville
JACKSON	Pres.— Secy.—John D. Ashley, Newport
JEFFERSON	Pres.—J. R. Pierce, Jr., 1202 Cherry, Pine Bluff Secy.—Carl E. Hyman, Masonic Temple, Pine Bluff
JOHNSON	Pres.—Guy Shrigley, Clarksville Secy.—Robert H. Manley, Clarksville
LAFAYETTE	Pres.—Willie J. Lee, Stamps Secy.—Charles Cross, Stamps
LAWRENCE	Pres.—J. B. Elders, Walnut Ridge Secy.—J. B. Elders, Walnut Ridge
LEE	Pres.—E. C. Nowell Fields, Marianna Secy.—F. S. Dozier, Marianna
LINCOLN	Pres.—James Freeland, Star City Secy.—Richard C. Petty, Star City
LITTLE RIVER	Pres.—N. W. Peacock, Ashdown Secy.—James D. Armstrong, Ashdown
LOGAN	Pres.—Charles McD. Smith, Paris Secy.—James T. Smith, Paris
LONOKE	Pres.—Edward J. Cooper, England Secy.—B. E. Holmes, Lonoke
MILLER	Pres.—Betty Ann Lowe, 401 E. Fifth, Texarkana Secy.—Thomas Paul Thompson, 401 E. Fifth, Texarkana Exec. Secy.—Mrs. Marilyn Pryor, P.O. Box 1288, Texarkana, Tex.
MISSISSIPPI	Pres.—George D. Pollock, Osceola Secy.—Eldon Fairley, Osceola

PROCEEDINGS

MONROE	Pres.—J. P. Williams, Jr., Brinkley Secy.—W. L. Walker, Brinkley
NEVADA	Pres.—L. J. Harrell, Prescott Secy.—Glenn G. Hairston, Prescott
OUACHITA	Pres.—Tom Meek, 415 Hospital Drive, Camden Secy.—L. V. Ozment, 530 Jefferson Street, Camden
PHILLIPS	Pres.—L. J. P. Bell, Helena Secy.—William W. Biggs, Helena
POLK	Pres.—David P. Hefner, Mena Secy.—Henry N. Rogers, Mena
POPE-YELL	Pres.—Jerome Luker, Dardanelle Secy.—W. E. King, Russellville
PULASKI	Pres.—Payton Kolb, 1120 Marshall, Little Rock Rec. Secy.—William G. Reese, 4301 W. Markham, Little Rock Exec. Secy.—Mr. Paul Harris, 510 Pulaski, Little Rock
RANDOLPH	Pres.—M. A. Baltz, Pocahontas Secy.—Hal S. Barre, Pocahontas
SALINE	Pres.—J. L. Martindale, Benton Secy.—James C. Bethel, Benton
SCOTT	Pres.—Harold B. Wright, Waldron Secy.—James A. Jenkins, Waldron
SEARCY	Pres.—John H. Williams, Marshall Secy.—John A. Hall, Clinton
SEBASTIAN	Pres.—J. F. Kelsey, P.O. Box 1058, Fort Smith Secy.—John C. Watts, 1400 South D, Fort Smith Assistant to the Secy.—Mrs. Jackie Boyd, c/o Sparks Hosp., Fort Smith
SEVIER	Pres.—Rodger C. Dickinson, DeQueen Secy.—W. D. Goodin, DeQueen
ST. FRANCIS	Pres.—C. E. Crawley, Forrest City Secy.—J. Neal Laney, Forrest City
UNION	Pres.—A. J. Baker, 111 W. Peach, El Dorado Secy.—Ronald M. Lewis, 460 W. Oak, El Dorado
WASHINGTON	Pres.—J. Warren Murry, 1749 N. College, Fayetteville Secy.—Morris M. Henry, 35 N. Block, Fayetteville
WHITE	Pres.—C. H. Paine, Jr., Searcy Secy.—Hugh R. Edwards, Searcy
WOODRUFF	Pres.—F. C. Maguire, Jr., Augusta Secy.—C. E. Dungan, Augusta

PROPOSED CONSTITUTIONAL REVISIONS AS AMENDED BY HOUSE OF DELEGATES

Amend the By-Laws, Chapter 1, Section 1, as follows:

Change title of Section 1 to "Section 1 (a)":

(a) The name of a physician on the properly certified roster of members of a component society which has paid its annual assessment, shall be prima facie evidence of membership in this Society

Add to new Section 1 a sub-section (b):

(b) Membership in this Society shall consist of the following classifications:

(1) Provisional

(2) Regular

(3) Life

(4) Affiliate

(5) Affiliate membership as intern or resident

(6) Military

Amend the By-Laws, Chapter IX, Section 5

Change Section 5 to add the word "officers" after words "Section 5" and to add new paragraph as follows:

(a) Elections

Component societies shall consist of not less than five members, and there shall be a presi-

dent, secretary-treasurer and board of censors as set forth in (b) and no member can hold more than one of such offices at one and the same time. There may be such other officers as may be required, including vice-president and board of trustees, also delegates and alternates to the State Society. The term of all officers except the censors shall be for one year. All officers and delegates to the State Society shall be elected during the month of December or at the last meeting of the year in the instance there is no meeting in that month. Vacancies in the offices referred to in this by-law shall be filled in the manner stated in the Society by-laws; but when no provisions are thus made for any such contingency, such vacancies shall be filled by the component county society president, until the time for the annual election of officers.

(b) Election of Censors

- (1) In those county societies of less than 200 members, the Board of Censors shall be composed of three members. In societies of ten or less, the Society may act as Committee of the Whole in lieu of the Board of Censors. The term of office of the censors shall be three years, and they shall be so elected that but one vacancy normally occurs each year, and no member shall succeed himself.
- (2) In those county societies of more than 200 members, the society *may* elect to increase the Board of Censors from not less than three (3) to not more than seven (7) members. The censor shall serve terms of three (3) years and then elections shall be so arranged that no more than three (3) shall be elected to any one year except for the first year that the society elects to increase the size of the board. No member may succeed himself. This year the election of the additional members shall be so arranged that the terms of office of newly elected members shall not conflict with the future election of members as described above.

Add paragraph "(c)" Delegates—This paragraph is transferred from present Section 11:

(c) Delegates

At some meeting in advance of the Annual Session of this Society, each county shall elect a delegate or delegates to represent it in the House of Delegates of this Society, in the pro-

portion of one delegate to each twenty-five members, and one for each major fraction thereof, and the secretary of the county society shall send a list of such delegates to the executive vice president of this Society at least ten days before the Annual Session.

Add paragraph "(d)" Secretaries, sub-paragraph (1)—This was transferred from present Section 12:

(d) Secretaries

- (1) The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report, he shall endeavor to account for every physician who has lived in the county during the year.

Add paragraph "(d)" Secretaries, sub-paragraph (2)—transferred from Section 13:

- (2) The Secretary of each component society shall forward its assessment together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county, to the executive vice president of this Society on January 1, and not later than March 1 of each year.

Add following new paragraphs as sub-paragraph "(e)":

(e) Board of Censors

The Board of Censors of component county societies shall examine into and report on the qualifications of applicants for membership in their respective organizations and shall ascertain from the executive vice president what the records of his office show in regard to the past conduct of any such applicants, before making report to their respective societies. The Board of Censors shall review the record of each provisional member at the termination of the provisional period and shall present the same to the society with recommendation for or against regular membership.

The Board of Censors will provide supervision and guidance in matters of medical ethics and etiquette for provisional members. Any time during the provisional period they

may recommend to the society that the provisional members be dropped from the society and this may be done by a two-thirds ($\frac{2}{3}$) majority vote of those present and voting at a regular meeting of the county medical society if a quorum of the Society is present at the time of voting. The Board of Censors shall supervise the ethical deportment of all the members of its society and shall counsel individual members where warranted.

The Board of Censors shall have the authority to investigate on their own initiative suspected violations of conduct when they have reasonable grounds to suspect unethical conduct and to prefer charges when indicated after thorough investigation. They shall receive and investigate charges of unethical conduct made against members of their respective societies by another member, and shall review the findings of the County Public Grievance Committee and the Adjudication and Medical Testimony Committee and make proper disposition of each case.

Amend the By-Laws, Chapter IX, to designate Section 6 title as "Members" and to re-number present Section 5 as Section 6 (a):

(a) Each county society shall judge the qualifications of its own members, but as such societies are the only portal of this society and to the American Medical Association, every reputable physician who possesses the eligibility qualifications for membership required by Article IV, Section 2, of the Constitution of this Society, and who does not practice or claim to practice nor lend his support to any exclusive system of medicine shall be eligible to membership. No physician or surgeon who solicits patients or business for himself, or for an association or other organization of which he is a member, or by which he is employed, or in which he is interested, shall be eligible for membership in this Society, and no physician who works for, is employed by, or is interested in, any association or organization which solicits patients, members or physicians, shall be eligible for membership in this Society. Any member of the Society who shall hereafter violate any of the provisions hereof shall be expelled from the Society. Before a charter is issued to any county society, full and ample notice shall be given to every such physicians in the county to become a member.

Add new provision on classification of members as sub-section (b) of Section 6:

(b) Classification of members

(1) Provisional

Component county societies shall provide a provisional period for applicants seeking membership in their county society of twelve (12) months. New members accepted on a provisional basis shall have all the privileges of regular membership in the society, except as provided in this section of these by-laws and in Section 5 (e). Provisional members shall not have the right to hold elective office, endorse application for membership or serve as a delegate or alternate delegate to the Arkansas Medical Society.

When a provisional member is dropped from the county medical society before the end of the provisional period by means provided in Section 5 (e) of this chapter, he may not apply again for membership in any component county medical society for a period of one year if he continues to reside under the jurisdiction of that component county medical society.

At the end of the provisional period, a provisional member *shall* again be considered by the Board of Censors of said component county medical society, and elected by same before his membership becomes permanent.

If, at the end of the provisional period, the provisional member fails to be elected to regular membership, the Board of Censors of said component county medical society will provide counsel directed toward rehabilitation of the rejected physician. The rejected physician may also request the Board of Censors to recommend to the society a further period of provisional membership; and it *may* be granted, the time at which it may begin and the duration of the additional provisional period to be stipulated by the Board of Censors in its recommendation in each individual case, though it may not exceed a period of one year from the date of rejection by the county society. At the end of this additional period of provisional membership, the candidate will again be considered by the Board of Censors, who will place his name before the county society again with

recommendation as to acceptance or rejection. If the provisional member fails to be elected to regular membership after the second provisional period, he may not again apply for provisional membership in any component county society until one year has elapsed after the second rejection by the society or upon appeal to the Council of the State Medical Society as provided in Section 7, Chapter IX of these by-laws.

All provisional members shall have attended at least one orientation program given by the Arkansas Medical Society before being considered for regular membership. Qualifying orientation programs shall be offered at the time and place of the Annual Session of the Arkansas Medical Society and at one other time as set by the Council during each year.

Intern membership, resident membership and military membership shall not be considered as a substitute for any part of the twelve (12) months of provisional membership.

Any member accepted on transfer from another component county medical society shall also serve twelve (12) months as a provisional member and shall attend the orientation program, unless such member has previously attended the orientation program presented by the Arkansas Medical Society, before being considered for regular membership.

(2) Regular

The acceptance of the privilege of regular membership carries with it the obligation and privilege to assume the duties of any office to which the member may be elected or appointed by the county medical society and the Arkansas Medical Society.

(3) Special Memberships

(a) Life

An active member who shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or elsewhere in the United States, shall, upon establish-

ing the above facts to the satisfaction of his county medical society, and upon the recommendation of such society, be granted the status of a Life Member. Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.

(b) Affiliate

An active member in good standing in his county society may, upon the recommendation of such society, be granted affiliate membership with full voting and other privileges where one or more of the following conditions exist: retirement from active practice, physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and a member must be recommended each year for such special status by the secretary and president of his county medical society following a review and reassessment of his particular situation. An affiliate member shall enjoy full membership privileges and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him for such year.

(c) Affiliate for interns and residents

An annual affiliate membership shall be granted interns and residents, provided they are fully or partially excused from the payment of county society dues, and provided the request for exemption is transmitted through a component society of the Arkansas Medical Society. The requirement for active membership prior to exemption shall be waived for such affiliate members. This type of member shall be accorded full privileges except that he may not vote or hold office, and he shall receive the Journal of the Arkansas Medical Society.

(d) Military

Regular members of the Arkansas Medical Society who are in the service

of the armed forces of the United States, not as career officers, may be classified as military members, and carried on the rolls of their respective county societies as such. Military members shall have a waiver of dues during the time of service, provided that they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of mem-

bership shall be issued to them for each year.

Amend Chapter IX to re-number present sections as follows:

- Section 7. (Old Section 6)
- Section 8. (Old Section 7)
- Section 9. (Old Section 8)
- Section 10. (Old Section 9)
- Section 11. (Old Section 10)
- Section 12. (Old Section 14)



MRS. CHARLES F. WILKINS, JR.

Russellville

President 1965-1966

Woman's Auxiliary to the Arkansas Medical Society

MINUTES OF THE ANNUAL CONVENTION OF THE WOMAN'S AUXILIARY TO THE ARKANSAS MEDICAL SOCIETY

April 25-28, 1965

The Pre-Convention Board Meeting of the Woman's Auxiliary to the Arkansas Medical Society was held at a breakfast in the Rendezvous Room of the Marion Hotel in Little Rock, Arkansas, at 8:00 A.M. on Monday, April 26, 1965.

Mrs. James W. Branch, president, called the

meeting to order. The invocation was given by Mrs. J. P. Price, Chaplain.

After the introduction of special guests by Mrs. Branch, the corresponding secretary read several letters of interest to the group. Mrs. Robert Atkinson, recording secretary, called the roll. There were 28 members and guests present.

The treasurer, Mrs. Joe B. Scruggs, reported a balance on hand of \$1,842.62. The report was

placed on file as directed.

Mrs. Jack Kennedy, Finance Chairman, read the proposed budget. The balance plus the interest amounted to \$3,794.00. Mrs. Langston moved we accept the budget as read, Mrs. Kennedy seconded. The motion carried.

A recommendation was made by Mrs. C. C. Long that Mrs. Curtis Jones, Sr., be made an Honorary State Member. The motion was seconded and passed.

A committee was appointed by the president to work on rules of the Ilse F. Oates Fund. Those appointed were: Mrs. Ray Fulmer, Mrs. Mason Lawson, and Mrs. Jack Kennedy.

There being no further business, the meeting was adjourned.

MINUTES OF THE OPENING SESSION OF THE WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY

April 26, 1965
9:30 A.M.

The opening general session of the forty-first annual convention of the Woman's Auxiliary to the Arkansas Medical Society convened in the Court Room of the Marion Hotel at 9:30 A.M. Mrs. J. P. Price, chaplain, read the Collect, which was written by one of the members, Mrs. George Fletcher.

Mrs. Robert Henry welcomed the group in a poetic message and was responded by Mrs. Paul Gray who complimented the Pulaski Auxiliary for a wonderful program outlined for the participants.

Greetings were brought from the Society by Dr. Randolph Ellis, President of the State Medical Society and Mr. Paul Schaefer, Executive Secretary of the Society.

Mrs. James W. Branch, president, introduced Mrs. Richard Sutter from St. Louis, Mo., President-Elect of the Woman's Auxiliary to the American Medical Association; Mrs. Jordan Kelling, President of the Woman's Auxiliary to the Southern Medical Association; Mrs. Charles Wilkins, President-Elect of the Arkansas Medical Auxiliary; and Mrs. Gordon Oates, Convention chairman from Pulaski County. Mrs. Oates welcomed the group and pointed out the attractive Art Exhibit in the back of the room. She stated that a percentage of the receipts from the sale of these pictures would be donated to A.M.A.E.R.F. from Pulaski County.

The credentials chairman reported that 81 had

registered thus far.

Mrs. Jim McKenzie, Parliamentarian, read the Convention Rules of Order and moved that they be accepted. The motion was seconded and carried.

Mrs. Harlan Hill, Convention Chairman, presented the program. It was accepted with pleasure.

A reading committee was appointed by Mrs. Branch. Those named were Mrs. W. R. Meredith, Chairman, Mrs. H. W. Thomas, and Mrs. Frank Padberg. Also appointed was the Courtesy Committee consisting of Mrs. Carl Parkerson, Chairman, Mrs. Curtis Jones, Jr., and Mrs. Carl L. Wilson.

Mrs. Robert Atkinson, Secretary, called the roll, which was followed by the seating of the delegates. A quorum was declared and the president, Mrs. Branch, called the meeting to order.

The minutes were referred to the reading committee and will later be printed in the Minutes and Reports.

Mrs. Joe B. Scruggs, Treasurer, reported a balance of \$1,842.62. The report was placed on file as directed.

Mrs. Branch gave a report of the executive board. The recommendation that Mrs. Curtis Jones, Sr., be made an Honorary State Member for her services was brought before the House. The group voted unanimously in favor of it.

Reports of officers were next on the agenda. Those reporting were as follows:

Mrs. Charles Wilkins—President-Elect

Mrs. James Branch—President

Reports of Committee Chairmen:

Mrs. Frank Adams—A.M.A.E.R.F.

Mrs. Mason Lawson—State Cancer Commission

Mrs. Joseph Buchman—Community Service

Mrs. C. C. Long—Councilor to Southern Medical Auxiliary

Mrs. M. J. Kilbury, Jr.—Brooksher Loan Fund

Mrs. John M. Smith—Health Careers

Mrs. C. C. Long—Legislation

Mrs. Curtis Jones, Sr.—Martha Harding Gann Loan Fund

Mrs. Art B. Martin—Members at Large (she reported that there was an increase of from 5 to 24 members.)

Mrs. Wallis Rose—Mental Health

Mrs. C. C. Long introduced Mrs. Richard Sutter, guest speaker. She made a most informative talk based around the fact that we are living in a social revolution. She made many suggestions

about how the doctors wives could help during this change in our world of today.

There being no further business a motion was made that we adjourn.

At 12:30 A.M. a very attractive luncheon was prepared for the guests, the theme being Arts and Crafts of Arkansas. The Forum Room was festive with crafts that were made in shops in the state. Mrs. Branch presided at this gathering that honored Mrs. Richard Sutter, President-Elect of the Woman's Auxiliary to the American Medical Association. The invocation was given by Rev. R. D. Adams, minister of the First Presbyterian Church of Little Rock. Honored guests were introduced. Mrs. Mason Lawson introduced the Past Presidents, giving a little history of each. Mrs. Art B. Martin asked the Members at Large to stand. Mrs. Frank Adams made the A.M.A.E.R.F. awards. Franklin-Logan won both awards. Mrs. Long presented the Doctor's Day Awards. Sebastian County won first place in the auxiliary with more than 25 members; Garland County won second place, Craighead-Poinsett won third place. In the division of under 25 members Johnson won first place, Columbia County second and Franklin-Logan third.

MINUTES OF THE SECOND SESSION OF THE WOMAN'S AUXILIARY TO THE ARKANSAS MEDICAL SOCIETY

The Second General Session of the Woman's Auxiliary was held in the Court Room at 9:30 A.M. on Tuesday, April 27, 1965. Mrs. James Branch presided. Mrs. J. P. Price, Chaplain, delivered the invocation. Mrs. Robert Atkinson, recording secretary, called the roll. There were 35 members present. The minutes were not read, but were referred to the reading committee.

Mrs. Hickey, Registration Chairman, announced that there was 57 visitors, 47 delegates, 2 County Presidents, 24 state officers and committee chairmen and 10 Past Presidents attending the convention, making a total of 141.

A quorum was declared and the meeting was called to order.

Reports of County Presidents were next in order. Many interesting projects were told by the following presidents:

Mrs. Thomas Durham—Garland County
Mrs. Jim McKenzie—Hempstead County
Mrs. Paul Gray—Independence County
Mrs. C. D. Burroughs—Jefferson County
Mrs. Robert Henry—Pulaski County
Mrs. Quinn Baber—Saline County
Mrs. Art B. Martin—Sebastian County

Mrs. Lawson gave a report from the President's Breakfast. Ten dollars would be contributed to the Ilse F. Oates Fund and to the Garrison Memorial Fund.

Mrs. Frank Padberg presented the slate of officers for the coming year: viz;

President—Mrs. Charles Wilkins

President-Elect—Mrs. John McCollough Smith

First Vice President—Mrs. Aaron Modelevsky

Second Vice President—Mrs. H. Wallace Thomas

Third Vice President—Mrs. Carl Parkerson

Fourth Vice President—Mrs. Art B. Martin

Recording Secretary—Mrs. W. R. Meredith

Treasurer—Mrs. W. Myers Smith

The nominating committee was composed of Mrs. Padberg, chairman, Mrs. Frank Adams, Mrs. Curtis Clark, Mrs. James Kolb, and Mrs. J. M. Smith. The slate was accepted by acclamation.

Next in order of business was the election of delegates and alternates to the American Medical Association Convention from the Woman's Auxiliary.

Delegates:

1. Mrs. Paul Gray—Batesville
2. Mrs. A. S. Koenig—Ft. Smith
3. Mrs. Jack Kennedy—Arkadelphia

Alternates:

1. Mrs. John Gray—Jonesboro
2. Mrs. Robert Hood—Benton
3. Mrs. Lynn Harris—Hope

Mrs. Carl Parkerson gave the Courtesy Resolutions. They were placed on file with the secretary.

Mrs. Jordan Kelling, President of Southern Medical Auxiliary, was introduced by Mrs. Paul Gray. Mrs. Kelling, with her experience as a book-reviewer and poet, charmed the group. She received much applause for her poem "The Good Doctors' Wives".

There being no further business, the meeting was adjourned.

At 11:45 a joint Memorial Service was held with the Arkansas Medical Society at the Lecture Hall, Robinson Auditorium.

A luncheon, honoring Mrs. Kelling at the "Top of the Rock" amid gaily decorated tables, was the "focal point" of the day. Mrs. Oates, Convention Chairman, presented a "Hat Skit" and lovely Hat Show. Mrs. Branch presided at the head table; Mrs. Price gave the invocation. Guests were introduced; also the County Presidents were recognized.

An impressive installation of the new officers was held. Mrs. Branch, immediate Past President, was given a pin of recognition for her service, and Mrs. Wilkins, a pin, designating the beginning of her year's work.





EDITORIAL

THE FINAL COMMON PATHWAY

Alfred Kahn, Jr., M.D.

In Sherrington's outstanding book entitled, "The Integration of the Nervous System," he uses the expression: the final common pathway. This referred to the peripheral nerve, and Sherrington's point was that many nerves originating in various parts of the central nervous system terminated in a synapse with the peripheral nerve. The peripheral nerve so to speak vectored the many diverse influences brought to bear on it and consolidated their effect into one course of activity.

The hospitalized patient is analogous to the final common pathway. He is the recipient of attention from nurses, aides, cooks, administrators, radiologists, surgeons, physicians, etc. The impact of all this activity is bound to influence the patient both psychologically and physically. The psychological element alone provides a potent stimulus toward recovery. A thoughtful plan of diagnostic and therapeutic procedures can then operate in the favorably pre-conditioned patient.

These desirable benefits of hospitalization have created a problem in our modern society, namely a seeming shortage of hospital beds. Regardless of economic factors if the patient and the physician did not realize the benefits of hospitalization, the demand for beds would be greatly reduced. The problem in Arkansas and elsewhere is how can we use the hospital beds to the best advantage of the patient.

It would appear that there are several levels of hospital facilities.

First, and most important, is the hospital designed for the seriously ill. This implies that patients in this type of hospital either need surgery or obstetrical care; or that they need medical care and they are either non-ambulatory, febrile, or have very complicated diagnostic problems.

These hospitals for the acutely ill have sustained a tremendous reduction in community effectiveness due to their infiltration with lightly ill patients. These hospitals have waiting lists of lightly ill patients which constantly interfere with the admission of the seriously ill. This is especially true in the metropolitan centers, whose hospitals should care for not alone the ill of that metropolitan community, but should also supply medical care to the seriously ill in the smaller communities with limited hospital equipment and technical facilities. The fault here lies in the medical professions failure to protect the hospital by asking for hospitalization of patients who could be treated outside the hospital. The catalyst in this situation is the patient with an insurance policy who stubbornly demands hospitalization even though neither his illness nor a fair interpretation of his policy justify hospitalization. The proper use of hospitals for the seriously ill would save the community a great amount of money; there would be no need to overbuild the expensive hospital physical plants, and the insurance rates for hospitalization could be materially reduced. More important than the cost would be the ability to provide better medical care in a hospital of sick patients than to have the laboratories and other hospital facilities efforts diluted by unnecessary work.

A second type of hospital need is one to care for the chronically ill and the aged. This type of institution does not need the elaborate laboratories, physical equipment, and specialized nursing care. With the changing social patterns in America, the need for beds in this type of institution is becoming greater and greater. A century ago, the family took care of the very young and as the new generation grew up they took care of the older generation in their home. With a

largely agricultural and rural population this can be accomplished without having to buy food and the cost of enlarging a country home was small. With urbanization, many city dwellers live in apartments or small homes which cannot be expanded except at prohibitive cost; food is bought—not grown, and there is no one home during the day to look after the old and infirm. The burden of caring for patients of this type is going to have to be in institutions, with a home-like atmosphere and a low cost of operation. Obviously expensive laboratories, x-ray equipment, etc. are not necessary and would only result in a higher cost of operation to a patient already under financial strain to himself and his family. Another problem involved here is how is the cost of this type of hospitalization to be defrayed. Americans are not inclined to save. They buy on credit and use most of their current income; they depend on retirement plans both private and government for old age income, and this is probably inadequate to cover hospitalization. Perhaps, the most logical answer is for the private insurance companies to try and set up an actually sound plan to provide for old age hospitalization, hospitalization for bonafide chronic disabilities of certain types, and for short term convalescent care during recovery from surgery or acute illness. Certainly, this can be worked out through private enterprise and without another governmental tax scheme.

A third category of hospital care is in what might be termed the community hospital. This service is offered in smaller communities but it is offered to only a limited extent in the larger cities. In the smaller cities, these hospitals take care of patients who are acutely ill, provides obstetrical service, and offers surgery for the un-

complicated case. This type of hospital provides a most important link in the chain of medical care for folks living in the smaller communities. In order to staff these hospitals properly, the general physician, the largest user of this type of facility, must be trained in surgery during the course of his house staff training. An automobile or farm accident demands a nearby physician with surgical experience. A new interesting geographic problem, is whether or not the community hospital for the less seriously ill has a place in the metropolitan area; in other words, is there a need for a hospital for nonambulatory lightly ill patients who have acute, not chronic, illnesses? This is currently being debated. Unfortunately, in some areas the debate centers around general practitioners versus specialists.

Finally, it has been proposed that hospitals for ambulatory patients should be set up. This is both unnecessary and an extravagant waste of community and government funds. These institutions usually require a community drive or a government loan to be set up. This type of institution will cause a rise in the already high cost of health insurance, as patients will demand hospitalization to take advantage of insurance policies. The cost of the policy will have to increase to cover this type of care. Moreover, the very reason for a private physician's office is to care for the ambulatory ill; it is the cheapest, most efficient means of care.

The patient is the final common pathway of medical care. The optimum use of medical facilities would benefit the patient and the public in many ways, and in the long run would act as a bulwark in fighting government medicine by making it unnecessary.



Guest Editorial

State and Regional Medical Journals—Traditional Assets To Be Preserved*

Many physicians, some of them thoughtful and serious, feel that state medical journals are unnecessary luxuries and that the role of the state medical society could be severely de-emphasized. Some see support dwindling for these traditional assets of the practitioner.

Regard this problem from its historical aspect by pretending that you are a practicing physician in some county in the United States, before the founding of our societies. You have several scores of fellow practitioners, but no medical organization. There is no county medical society to affront you by using your money for dues or your time for meetings and committee work. You are also free of such encroachments at the state and national level.

I am confident that it would be only a very short time before one of your fellow practitioners would approach you with the complaint: "Why don't they have some kind of medical society to represent us practitioners here in this county?" The need for a spokesman, for a medium of exchange of medical and scientific information, an educational medium, a social exchange, an economic guide, would be pressing. Soon this organization would be established and functioning, with the usual "clique" of willing workers being castigated as "power-hungry politicians" by the drones. Soon the adjacent counties would band together to found a state-wide amalgamation of these county groups. Inevitably, a national association would be created by uniting the state societies.

But all this togetherness could not be achieved without a great deal of communication. Much of this would necessarily be of a permanent nature, and would have to be in some archival form. The demand for an official house organ would be unavoidable and at each echelon of the organization, such publications would come into being.

In this reverse look at medical organization, we can safely assume that the complaining role would be taken by the same man who plays that part in

our present establishment. The same individual who does not want to spend a couple of dollars to get the "inside dope" on what is going on, is probably the very one who would, in our imaginary historical drama, be outraged by the absence of a society and an accompanying means of communication, if we were just building our societies from scratch. But we have gone through all this, and we are organized and stratified, and the various organizations are represented by appropriate publications. Regrettably, these things are being taken for granted, as are so many familiar good things.

And now, the inevitable change is leading to the separation of our previously-united doctors into small splinter groups, on the basis of specialization, methods of remuneration, place and type of practice, and many other factors. But the more we divide, the more we need to unite. The more the demands placed upon us by the need for specialization and other divisive forces, the more we must preserve those ties which bind us in our parent organizations. If we allow those strong bonds to dissolve, we will realize their value in their loss. The lack will be a greater vacuum than the one which led to their establishment in the first place.

To abandon the state journals would be to give up the means by which we find out what is happening in the art, science, and economics of medicine in our corner of the world, to say nothing of political, social, and educational activities of the area. Intercommunication is essential, and we must be involved in our discipline locally, where we live.

Our late American Medical Association President, Dr. Norman Welch, said well that it is the duty of the members of our AMA to become well-rounded physicians—to be learned in the science of medicine and skilled in the art, but also to be well-versed in the socioeconomic aspects of our profession. The doctor who devotes himself narrowly and completely to his special field cannot achieve this well-rounded development. His studies, however serious, however intense, cannot

*Editorial from *Pennsylvania Medical Journal*, January, 1965, page 46.

lead to wisdom. He who limits his reading to the texts and journals of his specialty and seeks to learn of related fields only from abstract journals, will grow in knowledge of less and less and will diminish in stature as his involvement in medicine decreases.

Should we have too many of such members, the unity we have achieved through our societies will disappear, and the intercommunication we have enjoyed through our publications will dwindle. Today, with constant changes in modes of practice, rapid increase in scientific knowledge, and frequent appearance of new therapeutic modalities, we must have rapid communication on the

local and state levels, as well as nationally. And who will risk a loss of unity in this social and economic climate? We need more than ever to hang together for fear of hanging separately.

To preserve our great achievements in American medicine, uphold your duty to your brother physicians and to yourself. Take time to broaden your outlook, by surveying your county bulletin and your state journal, your best medium for learning of the "inside dope" on social, scientific, political, educational, legal, and other matters at the place where all action is, where you are, and from your viewpoint.

Preserve these assets!



MEDICINE IN THE



MEDICAL LIBRARY NEEDS

For a number of years concern has been expressed over the medical library needs for expansion, renovation, and improved services.

Medical school libraries have been unable to develop the expanded facilities and technology required to keep pace with the flood of new knowledge and information emanating from vastly increased research expenditures in the health sciences. If the U.S. medical school libraries are unable to meet the need for expanded facilities and services, much of the ever increasing volume of knowledge and information in the health sciences will be inaccessible to many scientists.

A survey of medical education in 1953 pointed out the likelihood that medical libraries would be unable to keep up with the growing volume of medical literature.

This has since been substantiated in a study conducted by the AAMC in 1963, an AAMC-

AMA joint study in 1964, and a more detailed study by AAMC in 1965. These studies indicate that indeed the medical libraries have been unable to stay abreast of the mounting medical and scientific literature.

Specifically the 1963 study provided an estimation of the additional space needs of the 87 medical school libraries costing an estimated \$100 million for expansion and renovation. The study made in 1965 obtained estimates of library resource needs which could not be met from planned medical school budgets for 1965-70.

Additional space needs reported by 79 medical schools in this questionnaire indicated a total need of over 2.5 million square feet, or an average per school need of 32,000 square feet, essentially the same need as estimated in 1963.

In addition to their needs for additional space and volumes, the schools reported on their needs for support for cataloguing, binding, and other

instructional media or equipment. The average per school need for these other library resources is \$132,000.

Thus, the average medical school library would have to expend over \$1 million above expected budget allotments in the next five years to meet their library needs as currently estimated. This estimate does not include the additional costs of staffing, equipping, and maintaining expanded facilities for the needed increases in volume holdings.

Adequate utilization of currently accumulating knowledge in medicine, the sciences, and all fields that can contribute to medicine poses a major administrative challenge to medical schools and their parent universities. Steps must be taken now so that in the years ahead the medical school libraries can be adequate to the collection, preservation, storage, retrieval, and dissemination of biomedical information.

THE MONTH IN WASHINGTON

The House has passed legislation (H. R. 6675) to provide federal health care for the aged that goes much farther than the King-Anderson bill the Johnson Administration originally asked Congress to approve.

The key House vote as far as the King-Anderson provision was concerned was on substitution of a Republican insurance plan which included some features of Eldercare which was sponsored by the American Medical Association. The vote was 236 to 191 against the GOP substitute.

The vote on final House passage of H.R. 6675 was 313 for and 115 against.

After nearly two months of hearings behind closed doors, the House Ways and Means Committee on March 23 approved the "three-layer cake" program which included a modified version of the King-Anderson bill, a supplementary government-subsidized health insurance plan for the elderly and an extensive expansion of the federal-state Kerr-Mills Program.

The committee vote was strictly on party lines—17 Democrats for the catch-all package and eight Republicans against it.

Despite a tremendous flood of letters from the public in favor of the AMA's Eldercare plan for comprehensive health insurance for the elderly under Kerr-Mills, the House committee didn't take a vote on H.R. 3727—the Herlong-Curtis Eldercare bill.

President Johnson quickly gave Administration support to the committee bill and asked for speedy approval by Congress.

The Administration-approved legislation would provide compulsory social security coverage, effective Jan. 1, 1966, for self-employed physicians and for interns and residents.

It also would increase, retroactive to Jan. 1, 1965, social security cash benefits by seven per cent across-the-board with a minimum increase of \$4 a month for an individual.

The wage base on which social security taxes are paid would be increased Jan. 1, 1966, from \$4,800 to \$5,600, and Jan. 1, 1971, to \$6,600.

The tax rate on the new wage basis would be increased as follows:

	SELF-EMPLOYED		EMPLOYEE-EMPLOYER (EACH)	
	PRESENT	PROPOSED	PRESENT	PROPOSED
1966	6.2%	6.35%	4.125%	4.35%
1967	6.2%	6.50%	4.125%	4.50%
1968	6.9%	6.50%	4.625%	4.50%
1969-72		7.1%		4.90%
1973-75		7.55%		5.35%
1976-79		7.60%		5.40%
1980-86		7.70%		5.50%
1987 and thereafter		7.80%		5.60%

The social security tax paid by employees and employers each would be increased next Jan. 1 from the present \$174 per year to \$243.60. The tax on a self-employed individual would be increased from \$259.20 to \$355.60.

In 1971, when the taxable wage base would be increased to \$6,600, the employee and employer would be paying a tax of \$323.40 each, and the self-employed individual would be paying a tax of \$468.60.

The legislation would provide:

King-Anderson Section

Eligible: Persons 65 years and older.

Benefits: Inpatient hospital services for up to 60 days in semiprivate accommodations (two-to four-bed) during a spell of illness, subject to a deductible, which until 1969 would amount to \$40.

—Post-hospital extended care services for up to 20 days during any spell of illness in a facility which has in effect a transfer agreement with one or more hospitals or which a state agency finds has attempted to enter into such an agreement. This benefit could be extended for a period of up to an additional 80 days under circumstances described below.

—Post-hospital home health services for up to 100 visits during a one-year period following hospitalization.

—Outpatient hospital diagnostic services during a 20-day period subject to a deductible equal to one-half the deductible for inpatient hospital services.

Inpatient hospital services, post-hospital home health services, and outpatient hospital diagnostic services would begin in July 1, 1966. Post-hospital extended care services would begin in Jan. 1, 1967.

Supplementary Insurance Section

Eligible: Persons 65 years and older.

Cost to beneficiary: \$3.00 a month, first \$50 of medical bills covered and 20 per cent of total above \$50.

Benefits: Payment to the individual or to the provider of services for: (a) physicians' services, and (b) medical and other health services other than those by a provider of services as defined in the bill;

—Payments to providers of services for: (a) inpatient psychiatric hospital services for up to 60 days during a spell of illness, (b) home health services for up to 100 visits during a calendar year, and (c) medical and other health services furnished by a provider of services or by others under arrangements.

—No payment could be made under this program for any services for which the individual is entitled to have payment made under the King-Anderson section.

Administration: The secretary of Health, Education and Welfare would have to enter into contracts with carriers to administer the program.

Expanded Kerr-Mills

This program would combine all the vendor medical provisions for the blind, disabled and families with dependent children under a uniform program and matching formula. The federal matching share for cash payments for these needy persons would also be increased; services for maternal and child health, crippled children and the mentally retarded would be expanded; a five-year program of "special project grants" to provide comprehensive health care and services for needy children of school age, or pre-school would be authorized; and present limitations on federal participation in public assistance to aged individuals in tuberculosis or mental disease

hospitals would be removed under certain conditions.

Dr. Donovan F. Ward, president of the American Medical Association, said on House passage of H.R. 6675:

"The development of this bill and its passage by the House have been characterized by unrestrained haste. It is unfortunate that the American people have been denied the opportunity to learn through public hearings just how this legislation would affect their lives. The people do not understand this bill, and it is doubtful that the members of the House of Representatives can have acted with a clear comprehension of how it would affect the nation's health, how it would affect the practice of medicine or whether physicians would be able to provide high-quality medical care under the restrictions and controls it would impose on them.

"We are opposed to increasing taxes on wage earners to pay hospital bills for everyone over 65, regardless of their income. We are opposed to centralizing control over hospitals and doctors under a federal bureaucracy. We believe in helping the elderly who need help through a program, such as Eldercare, which is administered by the states, not controlled from Washington. Public opinion surveys clearly show that a majority of the American people agree with our position.

"We hope the Senate will proceed with caution and will conduct full and fair public hearings so that this bill can be thoroughly understood by everyone. We hope that the legislation which finally emerges will be sound and just, and will reflect the desires of a majority of the people."



Eighth Annual Arkansas Breakfast in New York

The Eighth Annual Arkansas Medical Society breakfast will be held at the Americana Hotel in New York City Monday morning, June 21st, at 7:30 a.m. This breakfast is one of the outstanding opening events of the annual convention of the

American Medical Association and is given in honor of the officers and members of the House of Delegates with approximately 400 people in attendance.

All Arkansas physicians and their wives who attend the AMA meeting serve as hosts and hostesses at the affair. The speaker this year will be Mr. Dudley Dowell, President, New York Life Insurance Company, who is originally from Little Rock. The entertainer will be Miss America.

The breakfast is supported by voluntary contributions from Arkansas physicians. Contributions should be made to "The Arkansas Medical Society Breakfast Fund" and sent to Dr. James M. Kolb, Clarksville, Arkansas.

Symposium on Pulmonary Disease at Hot Springs

A symposium entitled "Current Concepts of the Management of Tuberculosis, Pulmonary Fungus Disease, and Chronic Pneumonias" is scheduled for July 15th, 16th and 17th, at the Holiday Inn, Hot Springs, Arkansas. The sponsors are the Arkansas State Department of Health and The University of Arkansas Medical Center. There will be a minimum of lecture material with most of the program consisting of case presentations and discussion.

Physicians attending this symposium will be requested to work up a complicated case of pulmonary disease from their own clinical experience. An abstract of this case will be prepared for presentation to the group. Selected cases will be discussed by the group.



O B I T U A R Y

Dr. Alfred Hamilton Maddox

Dr. Alfred H. Maddox died March 18, 1965 at his home in Paragould at the age of 59. Dr. Maddox attended the University of Arkansas and was graduated from the University of Tennessee School of Medicine. He was a veteran of World War II and a member of All Saints Episcopal Church in Paragould. He was past president of the Greene-Clay County Medical Society, past chief of staff of the Community Methodist

Hospital, president of the First Councilor District of the Arkansas Medical Society, a member of the Board of Directors of the Arkansas Academy of General Practice and a member of the Arkansas Medical Society and the American Medical Association. He is survived by his widow and a son.

Dr. Joe Henry Hardin

Dr. Joe Henry Hardin of Little Rock died on April 9, 1965 at the age of 47. He began his medical practice in Little Rock in 1949. He was a veteran of World War II, and at the time of his death he was president of the Arkansas Chapter of the American Cancer Society. He was a member of the Pulaski County Medical Society, the Arkansas Medical Society and the American Medical Association. He was a Fellow in the American College of Physicians. Survivors include his widow, a son and two daughters.

Dr. L. H. McDaniel

Dr. L. H. McDaniel of Tyronza died April 7, 1965. He was 68 years of age. Dr. McDaniel was a civic and political leader in Poinsett County. He had served for many years as chairman of the Poinsett County Democratic Central Committee, and he was chairman of the Poinsett Election Commission. Dr. McDaniel became internationally famous for his "Festivals of Faith" which were held in Tyronza approximately every two years, beginning in 1954. His Festivals drew leaders in medicine, civic affairs and religion from all across the nation. He had served as area councilor of the Southern Medical Association and president of the Arkansas Medical Society and chairman of the Section on General Practice of the American Medical Association. He was a director of the Dunlap Orphans Home near Bolton, Tennessee, a member of the governing body of Erskine College in South Carolina and a former district governor of the Rotary Club. He had been a grand orator of the Masonic Grand Lodge of Arkansas, F&AM. He was graduated from the University of Tennessee Medical Units at Memphis in 1922 and set up practice in Tyronza at the age of 25. He was a member of the Methodist Church. He is survived by his widow, three sons, two daughters and five grandchildren.



PERSONAL AND NEWS ITEMS

Hot Springs Hospital Builds Annex

The Leo N. Levi Hospital on Prospect Avenue in Hot Springs broke ground for a new \$500,000 addition in April. It is one of the few hospitals in the United States devoting its entire effort to the research and treatment of arthritis. The new building will give the hospital 44 additional beds and 250 percent more clinical investigative and research ability.

New Doctor for Atkins

Dr. George E. Malone will move to Atkins, Arkansas, July 1st to take over the Atkins Clinic. Dr. Malone, presently in the U.S. Air Force, is a native of London, Arkansas.

Dr. Smith at North Arkansas Clinic

The North Arkansas Clinic and Hospital at Batesville has announced the association of Dr. Bob G. Smith in the practice of medicine and surgery. Dr. Smith, who is a native of Imboden, practiced in Walnut Ridge for one year. He has completed a residency in surgery at Lafayette, Louisiana.

Dr. Burks Joins Drs. Beaton and Crain

Dr. Willard Burks, formerly of Monticello and Little Rock, will join Drs. Beaton and Crain to practice general medicine in Wynne, Arkansas on July 1st. He is a 1963 graduate of the University of Arkansas Medical School.

New Health Center for Miller County

A private dedication program was held April 4th at the new Miller County Health Center in Texarkana. Among the guests were Dr. E. J. Easley, Director of the Bureau of Local Health Service of the Arkansas State Board of Health, and Dr. Betty Lowe, President of the Miller County Medical Society. Both Dr. Easley and Dr. Lowe were guest speakers on the program.

Dr. Blakely Robbed

Dr. R. M. Blakely, 79, of Little Rock, was attacked and robbed by a gunman on March

22nd. Dr. Blakely was injured slightly when he fought the man from his office into the examining room before he was beaten down by the gunman's pistol. The unidentified assailant stole about \$250.00 in cash.

Dr. Robins Prepares Lions Program

Dr. R. B. Robins, formerly a member of the Camden Lions Club, is now a member of the Central Lions Club of Chicago. He arranged the April 6th program of the club in Chicago. In honor of Boys Day in Chicago, Dr. Robins arranged to have Charles O. Finley, owner of the Kansas City Athletics baseball team to be the speaker for the occasion.

Dr. Schirmer Speaker at Meeting

Dr. Roy E. Schirmer of Fort Smith presented a paper entitled "Allergic Reactions to the Stinging Insects" to the Louisiana State Medical Society in New Orleans on May 5th.

Dr. McCurry Attends Luncheon

Dr. J. H. McCurry of Cash, Arkansas, attended the Fifty Year Club Luncheon of the Missouri State Medical Association in April. Dr. McCurry is Secretary of the Fifty-Year Club of American Medicine.

Dr. Ramsey Is Legion Speaker

Dr. Rex C. Ramsey, director of the maternal and child health division of the Arkansas State Board of Health, discussed hereditary disorders in children at a joint meeting of M. M. Eberts Post and Auxiliary in April.

Drs. Open New Clinic in Jacksonville

Doctors Jan Crow, Thomas Wortham and Rex Moore have opened a new clinic on Marshall Road, just next door to Rebsamen Memorial Hospital in Jacksonville.

New Clinic for Malvern

Work has begun on the construction of a modern clinic on Highland Avenue near the Hot

Spring County Memorial Hospital in Malvern. The clinic is to be occupied early this summer by Dr. John A. Vaughan who is presently a medical officer in the Navy.

Dr. Tatum Opens Clinic

Dr. Harold Tatum has recently opened a new clinic in Melbourne. Dr. Tatum is a graduate of the University of Arkansas Medical School.

New Hospital in Dardanelle

Official open house was held in March at the new twenty-six bed Dardanelle Hospital in Dardanelle. The hospital is on a block-square area formerly occupied by the Dardanelle Grade School.

VA Hospital Program Evaluated

A national evaluation team visited the North Little Rock Veterans Administration Hospital in March to evaluate a rehabilitation pilot program being tried out at the hospital. The team will determine if the North Little Rock method is suitable for all such VA hospitals. Dr. H. W. Sterling is director of the hospital.

Dr. Saltzman is RCIC Officer

Dr. Ben N. Saltzman of Mountain Home was elected vice chairman of the board of the Rural Community Improvement Clubs Association at the annual meeting held in Little Rock, March 11th. Dr. Saltzman presented plaques from the Arkansas Medical Society to five district health winners at the annual banquet. He was in turn presented with a medical dictionary printed in 1848. He has been a member of the Rural Community Improvement board of directors for the past four years.

Dr. R. B. Robins Member of the International Platform Association

Dr. R. B. Robins, Chicago, formerly of Camden, Arkansas, has been sponsored into membership in the International Platform Association by Lowell Thomas and Edgar Bergen. Membership in this organization consists of people who are concerned with public education on important issues of the day from a national and international standpoint. The next meeting will be in Washington, D.C. this summer.

RESOLUTIONS



RESOLUTION

WHEREAS, the passing from this life of Dr. William I. Porter, an honored and valued member of the medical community and of the Pulaski County Medical Society, is noted with sincere reverence and sorrow, and

WHEREAS, Dr. Porter served with devotion and skill his patients in his chosen specialty, and

WHEREAS, Dr. Porter had attained the highest degree of respect for his knowledge in his specialty among his colleagues;

BE IT THEREFORE RESOLVED:

THAT the Members of the Pulaski County Medical Society express to his family the heartfelt sympathy of our organization, and

THAT a copy of this resolution be made a matter of permanent record in the minutes of this Society, and

THAT a copy of this resolution be sent to his family, and

THAT a copy of this resolution be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
Gordon Holt, M.D.
Forrest Henry, M.D.

Read and approved by the
Executive Committee
April 21, 1965

RESOLUTION

WHEREAS, in order to express themselves on the recent loss of Dr. Joe H. Hardin, the members of the Pulaski County Medical Society do pause with respect and,

WHEREAS, Dr. Hardin was a member of the Society for sixteen years and his contribution to the health and well-being of persons in this community will long be remembered and appreciated, and

WHEREAS, the members of this Society extend to his family and friends their heartfelt sorrow and sympathy,

BE IT THEREFORE RESOLVED:

THAT a copy of this resolution be sent to his family,

THAT a copy of this resolution be published in the Journal of the Arkansas Medical Society, and

THAT a copy of this resolution be inserted into the permanent minutes of the Pulaski County Medical Society.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
Gordon Holt, M.D.
Forrest Henry, M.D.

Read and approved by the
Executive Committee
April 21, 1965

RESOLUTION

WHEREAS, words cannot express the feeling of the members of this Society on the recent tragic deaths of our colleague, Dr. James G. Thomas, his wife and three small children, and

WHEREAS, the members of this Society are grieved beyond expression at the loss of one of its youngest members who had just begun his career, and

WHEREAS, in the less than three years as a

member of this Society, Dr. Thomas had attained an enviable reputation with his colleagues, his patients and his community, and

WHEREAS, Mrs. Thomas had given unselfishly of her time and talent in working with voluntary health organizations aimed at the alleviation of human suffering,

BE IT THEREFORE RESOLVED:

THAT, the members of the Pulaski County Medical Society express to the families of Dr. and Mrs. Thomas their heartfelt sympathy in the loss of their loved ones, and

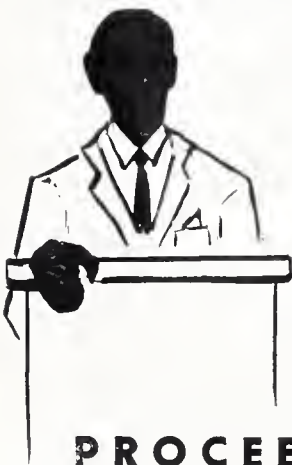
THAT, a copy of this resolution be forwarded to the families of Dr. Thomas and Mrs. Thomas, and

THAT, this resolution be made a part of the permanent records of this Society, and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
Gordon Holt, M.D.
Forrest Henry, M.D.

Read and Approved
February 2, 1965



PROCEEDINGS OF SOCIETIES

SEBASTIAN

Four pioneer doctors of Sebastian County who have been practicing medicine for 50 years or longer were honored at a dinner and entertainment program at the Holiday Inn South in Fort Smith on March 30th. The doctors who were honored were Dr. D. W. Goldstein who began his medical career in 1910; Dr. Charles W. Hall

of Greenwood, who has been practicing since 1915; Dr. M. E. Foster, retired, who started his practice in 1909; and Dr. J. E. Stevenson, who began his career in 1906 and retired in 1955. Members of the Woman's Auxiliary to the Sebastian County Medical Society arranged the program. The dinner and program was in observance of the annual Doctor's Day held each March 30th.

COLUMBIA

Doctors' Day was observed by the Columbia County Medical Society Auxiliary by giving a red carnation to each Magnolia doctor to wear. An arrangement of red carnations was placed in the lobby of Magnolia Hospital in honor of the doctors and in memory of deceased Magnolia doctors.

GREENE-CLAY

The physicians in Greene-Clay County Medical Society were given red carnations by the Auxiliary to commemorate Doctors' Day. Red carnations were also placed on the graves of deceased doctors in the area.

GARLAND

The Garland County Medical Society was honored by the Medical Auxiliary at a luncheon in the Velda Rose Tower in Hot Springs, March 30th, in observance of Doctors' Day. Dr. W. K. Smith and Dr. D. C. Lee received special recognition at the luncheon. Dr. Smith has practiced medicine for 52 years and Dr. Lee has practiced for 51 years. Red carnations, the official flower for Doctors' Day, were placed in several Hot Springs churches by the Auxiliary in honor of their husbands.



NEW MEMBERS

DR. JAMES A. SPRING, a native of Dumas, Arkansas, is a new member of Hempstead County Medical Society. He received his preliminary education from Arkansas A & M College, from which he obtained a B.S. degree. He entered the University of Arkansas Medical School and was graduated from there in 1962. He completed his internship at Lloyd Noland Hospital in Fairfield, Alabama. Dr. Spring has entered into the practice of medicine and surgery and is associated with Dr. James W. Branch at 426 S. Main in Hope, Arkansas.

A new member of Pulaski County Medical Society is DR. WILLIAM S. MEDART, JR. He is a native of St. Louis, Missouri, and he received his pre-med from Washington University. He was graduated from Washington University Medical School in 1960 and completed his internship at Barnes Hospital in St. Louis, Missouri. Dr. Medart is a pathologist and his office is at Arkansas Baptist Hospital in Little Rock, Arkansas.

Clark County Medical Society announces that DR. LAWRENCE G. WALKER, a native of Arkadelphia, is a new member. He received his preliminary education from Henderson State Teachers College and then enrolled at the University of Arkansas School of Medicine. He received his M.D. degree from there in 1963 and he interned at St. Vincent's Infirmary in Little Rock. He has served six and one-half years in the U.S. Air Force. Dr. Walker's office address is 416 Main in Arkadelphia. He is a general practitioner.

DR. HARMON LUSHBAUGH is a new member of Washington County Medical Society. He is a native of Chicago, Illinois, and he received his preliminary education from the University of Missouri at Columbia, Missouri. In 1959, he received his M.D. degree from the University of Missouri School of Medicine. Dr. Lushbaugh's specialty is obstetrics-gynecology and his office is located in the Colonial Village Shopping Center in Fayetteville, Arkansas.

A new member of Washington County Medical Society is DR. JACK A. WOOD, a native of Fountain Hill, Arkansas. He received his pre-med at the University of Arkansas, then he enrolled at the University of Arkansas School of Medicine from which he was graduated in 1947. He interned at Hurley Hospital, Flint, Michigan, and he served in the U.S. Navy. He practiced at Seminole, Oklahoma, from 1948 until 1960. Dr. Wood is a general surgeon and his office address is 1749 North College in Fayetteville, Arkansas.

DR. CARSON R. HAYDEN is a new member of Washington County Medical Society. He was born at Optimus, Arkansas, and received his preliminary education from the University of Arkansas. He received his M.D. degree from the University of Arkansas School of Medicine in

1960 and he interned at William Beaumont General Hospital in El Paso, Texas. Dr. Hayden's specialty is dermatology and his office is at Evelyn Hills Shopping Center in Fayetteville, Arkansas.

A new member of Washington County Medical Society is DR. ROBERT L. CHESTER. He is a native of Dalton, Arkansas, and received his pre-medical education from the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1955 and he served his internship at University Hospital in Little Rock, Arkansas. He has served in the U.S. Army. Dr. Chester is an anesthesiologist and his office address is 1031 North College in Fayetteville, Arkansas.

Pope-Yell County Medical Society announces that DR. DAVID S. BACHMAN is a new member. He was born at Allentown, Pennsylvania, and received his preliminary education from the University of Pennsylvania. He received his M.D. degree from the University of Buffalo School of Medicine in New York. He interned at Sacred Heart Hospital in Allentown, Pennsylvania. Dr. Bachman is a general surgeon. He is on the staff of the Millard-Henry Clinic at 511 West Main in Russellville, Arkansas.

Benton County Medical Society announces that DR. JOHN RASCO MARTIN has been added to the roster of members. A native of DeWitt, Arkansas, he received his preliminary education from Arkansas Polytechnic College, then he enrolled at the University of Arkansas School of Medicine. He received his M.D. degree from there in 1963 and he interned at St. Vincent's Infirmary in Little Rock. Dr. Martin is a general practitioner and his office is located at 403 South Maxwell in Siloam Springs, Arkansas.

A new member of Craighead-Poinsett County Medical Society is DR. OWEN H. CLOPTON, JR. He was born at Marmaduke, Arkansas, and received his preliminary education from Murray State College. He was graduated from the University of Arkansas School of Medicine in 1958 and he interned at Baptist Hospital in Memphis, Tennessee. He served in the U.S. Air Force from 1959 until 1961. Dr. Clopton's specialty is internal medicine and his office is at 826 Cobb Street in Jonesboro, Arkansas.



BOOK REVIEWS

POLYPOID LESIONS OF THE GASTROINTESTINAL TRACT, by Claude E. Welch, M.D., Visiting Surgeon, Massachusetts General Hospital, Boston, Clinical Professor of Surgery, Harvard Medical School, Boston, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1964.

This is an interesting little book, and it is justified as part of a series entitled, "Major Problems in Clinical Surgery." By itself it would not have much reason for being.

This little text is extremely interesting. It is extremely well-written and illustrated. It has excellent references. Its authors are outstanding authorities. The only criticism one could muster against it is that the same information is found in most any good textbook. The book discusses diagnosis and treatment. In general, this is an extremely interesting, well-written little book. AK

BLOOD PROGRAM IN WORLD WAR II, prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army, pp. 922, illustrated, published by the Department of the Army, Washington D.C., 1964.

This book on the "Blood Program of World War II" is well-written and illustrated. Although World War II was twenty years ago, much of the information is applicable to many emergency programs. Physicians who were in the military service during World War II will find this book of interest. Physicians in military medicine will find this book of invaluable assistance, in planning future programs. AK



Encephalitis and Parkinsonism

R. C. Duvoisin (710 W 168th St, New York) and M. D. Yahr *Arch Neurol* 12:227 (March) 1965

All patients attending the Parkinson clinic of the Columbia-Presbyterian Medical Center who classed as postencephalitis over a two-year period are reviewed. The diagnosis was considered definite in 33, probable in 5, possible in 4, but unlikely in 7. Postencephalitic parkinsonism remains an entity distinct from Parkinson's disease and a sequel unique to encephalitis lethargica. No satisfactory evidence could be found that it may follow any other type of encephalitis.



Sponsored by Arkansas Tuberculosis Association

DIAGNOSIS AND TREATMENT OF BACTERIAL PNEUMONIAS

Despite antimicrobials effective against almost all pulmonary pathogens, bacterial pneumonia has a high morbidity and mortality. Complications and problems of treatment are discussed.

Infections of the lung have come to be considered examples of diseases conquered by chemotherapy. There is no doubt that antibiotics have exerted a dramatic effect on the course and outcome of bacterial pneumonias, but this group of diseases continues to rank high as a major cause of morbidity and death. This is related in part to the changing ecology of these infections which were formerly common among young relatively healthy individuals, but are now found primarily among aged, debilitated patients with chronic disease.

Furthermore, antibiotics themselves contributed to the change in the clinical picture of pneumonia and have created problems in their use. Some of the features which have come to life regarding the diagnosis, course, and treatment of bacterial pneumonias are the following:

(1) The etiologic agent frequently is missed on Gram smears of sputum; (2) the appropriate organism is not suspected; (3) there is delay in recognizing superinfection; (4) the systemic complications, particularly meningitis, are overlooked; (5) antibiotics are not properly used; (6) alterations in flora of the sputum in patients receiving antibiotics are not appreciated; and (7) the propensity of nonbacterial complications of pneumonia to produce fever is not well known. These problems will be discussed.

STAPHYLOCOCCAL PNEUMONIA

Staphylococcal pneumonia may occur under a variety of circumstances such as a sequel to viral influenza, a manifestation of hematogenous staphylococcal disease, and a complication of

structural disease of the lung.

Pneumonia associated with influenza occurs in individuals of all age groups, but patients with pregnancy, valvular heart disease, and chronic lung disease appear to be particularly prone to development of this fulminating infection. The clinical picture is abrupt in onset, progresses rapidly with marked dyspnea, cyanosis, scant and bloody sputum, and evidence of alveolar-capillary block. The virus may be more important than the staphylococcus, but treatment with penicillinase-resistant penicillins is imperative.

Hematogenously disseminated staphylococcal infection has been noted frequently among narcotic addicts with septic thrombophlebitis. Patients suspected of having staphylococcal disease should be treated with penicillinase-resistant penicillins until results of cultures and sensitivities are available. If the organism is sensitive to penicillin G, therapy should be changed to this drug.

Certain X-ray findings should raise the suspicion of staphylococcal disease. These include the development of pneumatoceles, the occurrence of spontaneous pneumothorax; rapidly changing infiltrate with parafocal emphysema; and early loculation of pleural exudate. These manifestations of staphylococcal pneumonia are becoming increasingly common in infants and young children or patients with mucoviscidosis, postoperative states, and superinfections after broad-spectrum antibiotic therapy. Early diagnosis of staphylococcal pneumonia, followed by appropriate drug therapy, may avert mortality.

GRAM-NEGATIVE PNEUMONIAS

The incidence and severity of infections due to gram-negative pathogens other than the staphylococcus appear to be increasing, particularly in hospitalized patients whose normal bronchial flora is altered by antibiotics. Furthermore, the use of antibiotics *per se* may have increased the prevalence of these bacteria in the hospital. These pathogens are usually seen as superinfections but may produce primary pneu-

JONAS A. SHULMAN, M.D.; LEON A. PHILLIPS, M.D.; and ROBERT G. PETERSDORF, M.D., *Annals of Internal Medicine*, January, 1965.

monia. The organisms include *Hemophilus influenza*, *Escherichia coli*, *Klebsiella-Aerobacter*, *Protus*, and *Pseudomonas*.

H. influenza is frequently found in the sputum of patients with chronic lung disease and may be of etiologic significance in patients with chronic bronchitis. The relative variety of acute *H. influenza* respiratory infections in adults does not warrant disregarding this organism as a pathogen, particularly in patients who develop acute infections against a background of chronic bronchitis, pulmonary emphysema, and bronchiectasis. Infections due to *H. influenza* call for treatment with tetracycline.

Friedlander's pneumonia occurs most commonly in alcoholics, diabetics, and patients with other debilitating disease. Early recognition is essential if therapy is to be effective.

In alcoholic patients, there are similarities between Friedlander's pneumonia and pneumococcal pneumonia. Cavitory disease has been probably more common in pneumococcal infection than has been supposed. Alcoholic patients with pneumococcal pneumonia and cavitory disease also often have bacteremia, shock, and leukopenia, and their prognosis is poor. Early recognition followed by prompt therapy is essential.

Sterile pleural effusions are a more frequent complication of pneumococcal pneumonia than true empyema. They may be associated with fever that is not affected by further antimicrobial therapy, suggesting that inflammation rather than the presence of bacteria is the most important determinant in the genesis of fever. Sterile effusions usually resolve without therapy. Drainage through a large lumen catheter may be indicated.

Some metastatic manifestations of pneumococcal pneumonia may be life-threatening despite very minimal pulmonary infection. There is the classical triad of pneumococcal meningitis, endocarditis, and pneumonia. Despite adequate antimicrobial therapy, the patient may be left a "cardiac cripple."

COMPLICATING CONDITIONS

In some patients with slow resolution of bacterial pneumonia the infection fails to clear within four weeks. When patients over 40 have slowly resolving lobar consolidation and indolent rather than acute symptoms, surgical intervention should be considered.

Occasionally, but rarely, patients with acute respiratory disease have carcinoma and sometimes

patients with low-grade pulmonary symptoms suspected of having tumors may have only pneumonia, which responds readily to antimicrobials.

A variety of other local and systemic conditions predispose to bacterial infection in the lung. Among the local factors are trauma, broncho-stenosis, foreign body, aspiration, bronchiectasis, and cystic disease of the lung. Systemic diseases complicated by recurrent pulmonary infections include multiple myeloma, chronic lymphatic leukemia, agammaglobulinemia and hypogammaglobulinemia, the nephrotic syndrome, collagen vascular disease, splenectomy in children, and perhaps such a generalized disease as alcoholism.



Hashimoto's Disease

A. T. Masi et al (916 Clinical Science Bldg, Johns Hopkins Hosp. Baltimore) *Lancet* 1:123 (Jan 16) 1965

This case-control study with a "blind" review of all clinical and laboratory data is one of a series of investigations designed to test the validity of reported associations between Hashimoto's disease (struma lymphomatosa) and "autoimmune" disorders. All autopsies indexed at the Johns Hopkins Hospital with Hashimoto's disease were matched with the closest autopsy of the same sex, race, and decade of age. Over 250 characteristics were sought from clinical records and autopsy protocols. The case and control groups were similar with respect to number and type of hospital admission and several demographic characteristics, providing evidence of the adequacy of the control. Certain "autoimmune" disorders, e.g., rheumatoid arthritis, systemic lupus erythematosus, myasthenia gravis, pernicious anemia, adrenal insufficiency (Addison's disease), polyarteritis, diabetes mellitus, were found to be associated with Hashimoto's disease, but their occurrence was low, and they were also found in the controls. Some pathological abnormalities reported in "autoimmune" diseases were observed in these cases, but a comparable degree of involvement was seen in the controls. These results, therefore, do not give supporting evidence that Hashimoto's disease is associated with "autoimmune" disorders.

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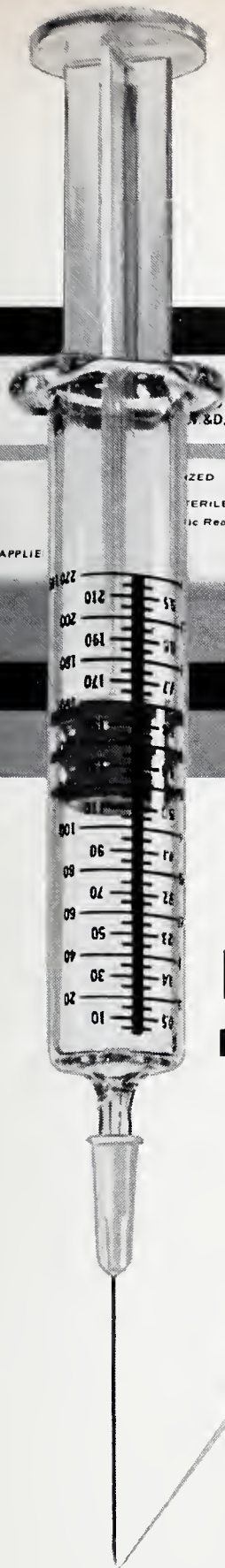
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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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STATEMENT OF R. B. ROBINS, M.D.*

H. R. 6675, Social Security Amendments of 1965

Before the Committee on Finance

United States Senate

May 10, 1965

Thank you for allowing me the opportunity to present my views as a physician on H. R. 6675.

My name is R. B. (Bob) Robins. I have been a Medical Doctor for 39 years. I am a past president of the American Academy of General Practice and the Arkansas Medical Society, and I hold Fellowships in the International and the American College of Surgeons.

While my years have been devoted to Medicine, I also treasure this opportunity for another reason. It gives me an opportunity to see old friends in these halls, including members of the Committee, and to renew ties dating back to the eight very satisfying years I spent as a member of the Democratic National Committee.

As a matter of fact, I believe I enjoy the unique distinction of being the only physician who has served on the national committee of either major party in this century. I represented Arkansas on the Democratic National Committee from 1944 to 1952 and there worked closely with the leaders of our party. Today they are the leaders of Congress, holding in their hands the responsibility for the nation's present and future well-being. Needless to say, I have only the greatest respect and warmest affection for all of them.

But it is as a doctor, as one of the 285,000 members of the medical profession in this country, that I speak to you now in vigorous opposition to a program of health care under centralized federal administration, with wage-earners compelled to

finance "free" government benefits for millions of Americans who do not need the assistance.

First, let me salute the Committee for holding hearings on this legislation. Physicians cannot understand why this measure was not open for public comment before it went to the floor of the House of Representatives for a final vote.

This recent chapter in the legislative history of H. R. 6675 points up a situation which I believe should be noted here. Bills of this kind have been introduced in one form or another for 20 years but Congress has never seen fit to act favorably on any of them throughout that long period. If these proposals were wrong in the past—if there was reason for successive Congresses to reject them—they are still wrong. But now, this bill, the most sweeping one of all, is being rushed through to passage, and with hardly more than pro forma consultation with the medical profession.

It appears that a long debate over a fundamental issue may be nearing an end. I believe it is reasonable to point out that physicians alone bear the ultimate responsibility for making this program work in whatever form it is finally enacted.

Your work on this matter will be done. You will turn to other issues of these times. Physicians will be left to contend day in and day out, month after month, with the terms of the legislation. They will be expected to go on providing only the best care while they strive to make sure the achievements of the past 25 years continue and multiply to the benefit of all mankind.

Most physicians do not believe this will be possible under the limitations and requirements imposed in the measure that is presently before you.

Surely their views and recommendations

Dr. R. B. Robins, Chicago, a former Democratic National Committeeman for eight years testified Monday, May 10, as a witness before the Senate Finance Committee in Washington on the Medicare legislation.

Dr. Robins was introduced by his friend, Senator John L. McClellan (D., Ark.) to the Senate Finance Committee since Senator J. W. Fulbright was abroad.

Herewith is the testimony rendered by Dr. Robins:

**Apt. 4926, Tower 2, Marina City, 300 N. State Street, Chicago, Illinois.*

merit some serious consideration. It is unreasonable to plunge ahead with the formulation of a program to which the great majority of members of the medical profession are opposed, both as to its expressed terms and its implied threat to the system of health care which this nation has always known.

As you consider the action you are being asked to take, I urge you to remember that heretofore in the United States the health professions have been free to pursue their constant search for better methods of treatment, more effective drugs and more efficient techniques—unencumbered by the outside interference which is inescapable under a vast federally financed and controlled program. Under our system as we have known it, America has become the medical Mecca of the world.

When I began medical practice, students who could afford it flocked to the medical centers of Europe for their basic and postgraduate education. Today, medical students from all over the globe come to the United States to study and become finer physicians.

Yet, at a moment when American medicine is pre-eminent throughout the world, it is proposed that we adopt the very system under which one European country after another has lost its former leadership in medical science.

There is no question, American physicians today are unsurpassed in their knowledge and ability. But what will happen when this seed crop is gone? Will the most talented young men and women continue to be attracted to medical careers when they see a profession falling more and more under government supervision? I doubt it. Many of our best young minds will turn to pursuits where they can exercise their abilities to the fullest, to make the most out of their lives, without the stultifying effects of government regulation. The loss of able entrants into the health care field cannot help but lead to a deterioration of the quality of care in this country.

The plan before you would cost a staggering sum. The administrative problems it would create would be enormous. But let these considerations be secondary for a moment. The important thing to observe and understand is the disruption of the doctor-patient relationship that it entails; the time to be spent waiting in overcrowded offices and facilities; the beginning of the regimentation of medical practice; the overburdening of medical facilities and personnel;

the delays in admission to hospitals.

These are the perils which a physician sees in this proposal. I wish I could make you see them, too, so that someday they will not come back to haunt us all.

Before I conclude, there is another point in this bill to which I should like to address myself. That is the compulsory inclusion of self-employed physicians in the Social Security system.

I am 65 years old, the age for retirement written into the Social Security law. I am actively engaged in the practice of medicine and surgery, and expect to be so engaged for a good many years to come. In this I am typical of the overwhelming majority of physicians my age and older.

We don't stop practicing at an arbitrary age limit; our patients, I am happy to say, do not want us to. I can tell you from experience that they expect us to keep on serving them as long as we are able and for a great many physicians that goes well into the 70s. Any program built around a 65-year retirement age simply does not fit our career pattern. It is unnecessary and unwarranted to force us into a system designed for persons in other callings where similar pressures do not exist to continue working into the latter years of life.

I urge you to delete this section from the bill.

In this brief testimony, I have tried to communicate, as a physician, my very deep and very sincere reasons for objecting to the passage of H. R. 6675. Medicine has been my life. I don't want to see it harmed—for the sake of the profession and for the sake of Americans of the future.

Time has not permitted me to go into specifics. But in the many hours of testimony here, you will receive a great many detailed objections to the terms of the bill from spokesmen for medical organizations throughout the country. I urge you to heed them.

I urge you to give serious consideration to the physicians' plan for meeting this problem—the Eldercare program with which you are familiar.

I urge you to reject H. R. 6675 and, in its stead, to write legislation which will fill the needs of all those who cannot take care of themselves, and at the same time will preserve the vitality and promise of our health care system.

Let me again express my appreciation for the opportunity to be heard on this important piece of legislation.

REFLECTIONS ON A DISASTER

Fred Gordy, Jr., M.D.*

This could be entitled "Music to Weather a Tornado By", or "What to Do Until the Level-head Comes".

Imagine being called to the hospital lickety-split, to cope with the aftermath of a disaster in a large metropolitan area. You drive much faster than usual, with the assurance that you are on a benevolent mission. Therefore, you can get away with murder with this guided missile you are driving, because the gravity of the situation will justify any woman-driver maneuvers just to get you there to raise the dead.

You comfort yourself with the thought that there may be five or six casualties with minor injuries that can be attended to with dispatch and aplomb, and without dampening the fresh shirt you put on for a dinner.

You notice that all the houses are dark, like the one you just left, and that all the street lights are out because they went off during the storm just now.

Then, you remember—everything will be all-right at the hospital, because our auxiliary generator will be cranked up and doing good work. You just demonstrated its presence and prompt response to a power shut-down for the hospital inspector who was here last week. Also, the disaster drill plan was within passable limits for this inspection, so everything is going to be just rosy.

But—you get to the hospital parking lot, which is lighted only by many flashing lights on the ambulances, burst in through the emergency entrance like you have just stormed a fortress, and fall down. You fall down because you were unable to see the storm victim who was in your path.

It's very dark, because the auxiliary generator you were all so proud of provides light only to the emergency room, the operating room, and the delivery rooms, plus an occasional dim light down the corridor.

You would like to get down there under one of those dim corridor lights, so you could see a little, but you can't because the halls are lined on both sides with people—people you have known all your life—who are lying there on mattresses and blankets as far as the dim light will allow you to see, and they are so quiet. Quiet because they are stunned to the marrow by some-

thing more powerful than they thought ever existed, and quiet because they have bled a lot.

You immediately want to take up another line of work, because you know you are going to be inadequate for the job.

It's apparent that everybody's hurt, or in shock of some form or other, so you want to give the first one you come to something to make him more comfortable, then get back to him to fix his wounds after all the others have been made more comfortable. Then you think, "I know this poor joker's name, but I can't think of it, and if I give him something now, one of our other doctors will come along behind me and give him something, too—or maybe someone already has."

So the disaster tags are brought out following an extended search, and you are ready to start easing pain—but with what? There are so many casualties you cannot possibly ask some nurse to give Mr. Doakes a narcotic, please, because you can't walk for the Doakes people lying on the floor, and the nurses can only be in one place at a time. They are trying to take care of a Mr. Doakes in every corner as it is.

You get your bag, if you can get to it, and start giving shots to the victims by flashlight and candlelight, because the auxiliary generator doesn't light up the linen closet or the supply room. But the people are hurting in those places just the same.

Then you finally get back to start treating the wounds. You suture some poor devil's wounds by the light of a flashlight held by a fellow that has had a couple too many, and you think to yourself that if he held a beer-can like he holds this particular flashlight, he'd be sober, but he's there trying to help anyhow, and it's his flashlight.

The seriousness of the situation has hit you through and through by now, and you think, "What in God's name are we going to do?"

Then, some distinguished-looking gentleman—expensively dressed, salt-and-pepper hair, with a little close-cropped mustache—steps through the emergency room door with considerable authority and says, "Where are the most seriously injured?" You think, oh, boy! Everything is going to be allright now—here's some hot-shot specialist that has come to take over. You say hope-

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fully, "Sir, are you a doctor?", and he says, "No, but I have had Boy Scout training!". You try to get him to go direct traffic or something, and work your way back to your helper with the wavering flashlight.

As you go from place to place, doing what you can, you see people from all over, really helping out. Some have come from judging a daffodil show in the afternoon to pass out coffee that night. A kid you saw picking his nose on the street corner that morning is going to town, spending his own quarters, buying crushed ice for the knocked-out ice machines, and serving the patients.

You think of all the articles you have read recently about man's inhumanity to man, and thank God that if this had to happen, it happened in this town, where the people demonstrated in spades that they *are* their brother's keepers.

Things are finally brought under some semblance of control, and you are waiting for the stragglers to come in. It is now that this fellow, somewhat renowned for his eccentricities, rushes in with a huge flashlight, hard hat, and an intense, searching look at the worst of the casualties, and announces, "I'd have been here sooner, but I had to go home and find my arm-band."

—displaying a freshly laundered Red Cross Volunteer arm-band. This just about pushes everybody over the edge, and there is a mixture of laughing and crying under your breath.

Before you get rested up, you begin to think of how your hospital, or any hospital, can better cope with a mess like this. Your first thought is where your first problem was, in the lighting.

An auxiliary generator that will produce enough light in a lot of places is needed.

Some immediately available method of tagging the casualties and channeling them into areas where there is light and room enough to work is needed.

Plenty of level-headed citizens knocking themselves out, helping their fellow-men in an orderly and efficient manner, as ours did, are needed. But you can't have everything in some towns.

You who might read this are thinking—well, that's fine that those people managed to make out, but it can't happen here; and if it did, we have these fine, big hospitals with all that paneling and tile and spit and polish and we could handle a disaster in a breeze.

Well, take it from one who has been to the party. If you're ever unlucky enough to get an invitation, take a flashlight and a prayer, and wear your old clothes.



Long-Term Prognosis of Severe Head Injury

H. Miller and G. Stern (Royal Victoria Infirmary, Newcastle upon Tyne, England) *Lancet* 1:225 (Jan 30) 1965

This report is concerned with a long-term follow-up study of 100 consecutive patients with severe head injury (average post-traumatic amnesia 13 days). They were re-examined after a mean interval of 11 years. Approximately 50% of the lesions were closed head injuries; 64 had resulted from traffic and 36 from industrial accidents. Only one death was attributable to the sequels of head injury. Traumatic dysphasia and cranial nerve lesions had a favorable prognosis,

except for those involving the first, second and eighth nerves. There was unexpectedly excellent recovery in 21 of 25 patients with spastic pareses. Psychiatric symptoms persisted in 16 patients. Post-traumatic epilepsy developed in 19 patients; in 16, seizures had begun within two years of injury, and 15 were still subject to them after five years, but 14 of these epileptics were employed. Ten of 85 adult patients were totally disabled from the occupational point of view and 30 had been downgraded, but 45 had escaped any loss of occupational status. The outcome has been generally more favorable than was expected or predicted.

Photoreceptor Structures and Energy Transfer^{*†}

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THE PHOTORECEPTORS of plant and animal cells are transducers. They are able to convert and transfer light energy to chemical and to electrical energy in initiating photosynthesis and visual excitation.

Analysis of the composition and physical-chemical properties of photoreceptors is essential for an understanding of their function. The chloroplasts in a variety of plants contain from 35% to 55% protein, 18% to 37% lipids, mostly phospholipids, and 5% to 8% inorganic material on a dry weight basis. The pigments, the chlorophylls, average about 6%, and the carotenoids about 2%. In addition, one cytochrome for every 300 chlorophyll molecules is found.

The retinal rod outer segments have similar concentrations of pigments, lipids, and protein. The proteins constitute 40-50%, the lipids 20-40%, again mostly phospholipids, and the pigment rhodopsin, 4-10%. The visual pigment is retinene₁ or retinene₂, (aldehydes of vitamin A₁ and A₂) complexed with opsin, a protein of lipoprotein.

The photochemistry of the pigment-complex within the chloroplast or the retinal receptors can now be studied by microspectrophotometry. Spectral shifts during the light \leftrightarrow dark reactions can be followed. An estimate of the pigment

concentration in a single photoreceptor can be made; e.g., there are 1.3×10^9 chlorophyll molecules per *Euglena* chloroplast, and 3.2×10^9 rhodopsin molecules per frog retinal rod (Wolken and Strother, 1963).

Structural data obtained by electron microscopy for the chloroplasts and the retinal rods and cones in a variety of plants and animals, show an ordered *fine structure* in molecular dimensions of stacked plates or discs. These appear as double membranes (lamellae), whose total thickness is of the order of 250 Å; the individual membranes are of the order of 50 Å in thickness. The electron-dense layers are probably lipids, and the less dense layers aqueous proteins. The location of lipid and proteins is assumed from staining and chemical reactions of fixing agents within these structures.

In order to determine more precisely how the pigments may be associated within the lamellae, the geometry of the photoreceptors (the length, diameter, and number of layers) was measured and statistically evaluated to find out the area that each pigment molecule would occupy if spread as a monolayer on the lamellar surfaces. The calculated cross-sectional area from geometry that would be occupied by the pigment molecules in the photoreceptors is shown in Table I. For example, the cross-sectional area occupied by a chlorophyll molecule is about 225 Å², which is the cross-sectional area expected for a porphyrin molecule if spread on a water-air interface.

^{*}Presented in the Biophysics Seminar at the University of Arkansas Medical Center, December 4, 1964 and presented in part at the Symposium on *Photosensitization in Solids*, Illinois Institute of Technology, Chicago, Illinois, June 24, 1964.
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TABLE I

	D	T	n	N	A	d
Photoreceptors	Diameter	Thickness	Number of	Number of	Cross-	Diameter of
	μ	of Layers	layers per	chlorophyll or	sectional	chloroplastin
		Å	photoreceptor	retinene molecules	area	and rhodopsin
					Å ²	molecules
Chloroplast						
<i>Euglena gracilis</i>	6.5	242	21	1.0×10^9	222	15
Retinal rod						
Frog	5.0	200	1000	3.8×10^9	2620	51
Cattle	1.0	200	180	4.2×10^6	2500	50

There are 2n surfaces available for each layer.

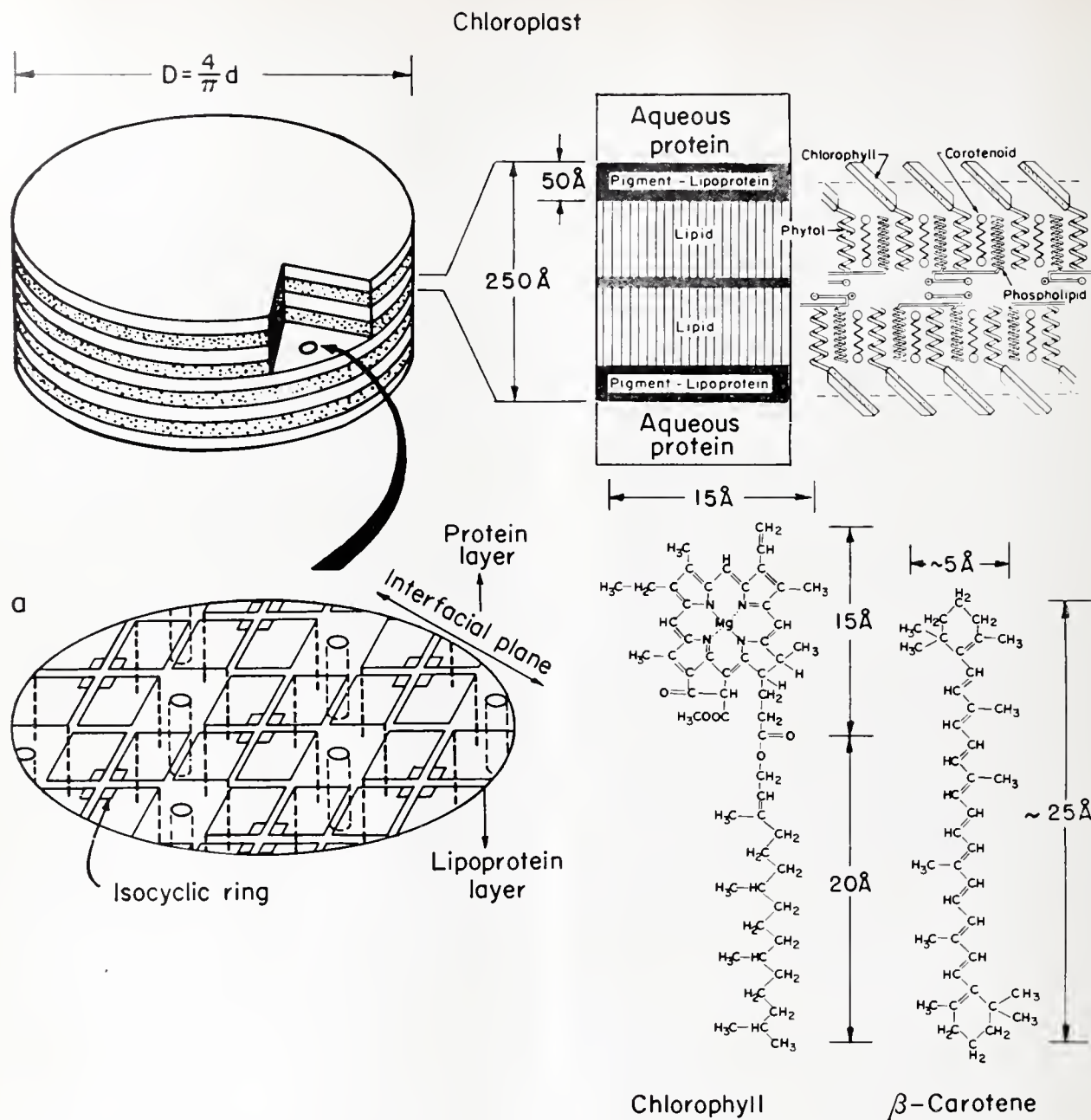


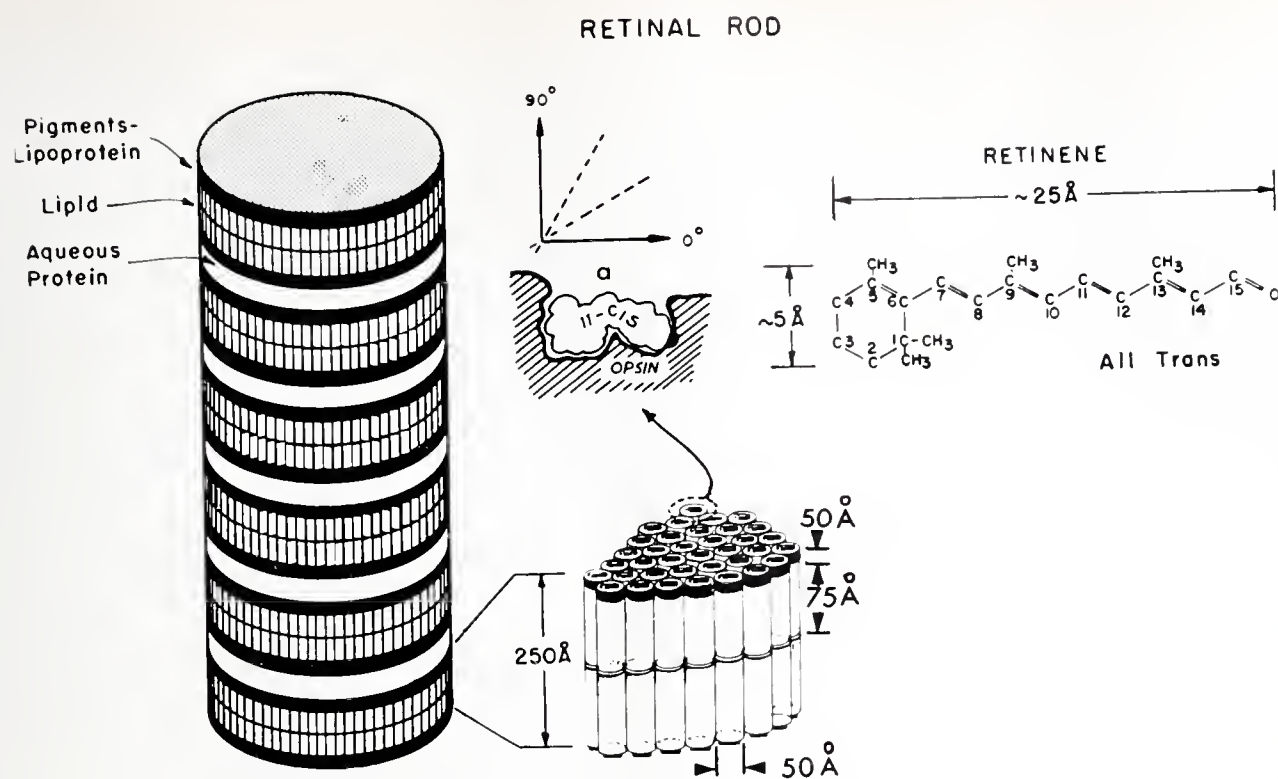
FIGURE 1.

Chloroplast, schematic molecular model; the aqueous protein phase would also contain one cytochrome *c*-type molecule for every 300-400 chlorophyll molecules.

A simplified structural molecular model for the chloroplast was proposed based on these data, in which four chlorophyll molecules are united to form tetrads, with the reactive isocyclic rings turned toward each other (Fig. 1). Interaction between the phytol tails is eliminated in the model by arranging the tetrads in such a way that only one of the phytol tails is located at each intersection in the rectangular network. If the chlorophylls are arranged in a monolayer as shown in the schematic molecular network, space is available for the carotenoid molecules. If these spaces are occupied as shown (Fig. 1), there will be one carotenoid molecule for at least every three (or up to six) chlorophyll molecules in the network.

This kind of close packing of the chlorophyll and carotenoid molecules in monolayers would permit energetic interaction between them.

For the retinal rods, the length, diameter, number of lamellae, and their thickness were used to calculate the cross-sectional area of the rhodopsin molecule (Volken, 1961a). For example, the dense layers (lamellae) consist of double layers of pigment-lipoprotein and lipids. The low molecular weight lipid would then occupy the interstitial spaces as illustrated in Fig. 2. The cross-sectional area A , which would be associated with each macromolecule, and therefore with each pigment molecule, is $A = \frac{\pi D^2}{4P}$, where D is the diameter



Retinal rod outer segment; schematic molecular model. (a) Taken from Hubbard and Kropf, *Ann. N.Y. Acad. Sci.*, 81, 1959.

of the photoreceptor, and P is the number of pigment molecules in a single monomolecular layer. The maximum cross-sectional area A associated with each rhodopsin molecule, can be derived from the above equation, where P is replaced by $N/2n$, in which N is the pigment concentration in molecules per retinal rod and n is the number of dense layers (lamellae) per outer segment, then $A = \frac{\pi D^2 n}{2N}$. The cross-sectional area calculated from this equation for cattle and frog rhodopsin was found to be 2500 \AA^2 and 2620 \AA^2 respectively (Table I). The diameter of the rhodopsin molecule would then be of the order of 50 \AA .

The photoreceptors in these models (Figs. 1 and 2) resemble a quasi-crystalline structure. The pigment-lipid-protein complexes are intimately tied to the structure of the photoreceptor, and both retinal rods and chloroplasts are dependent on the pigment, in the right molecular form and shape, for stabilization of the structure. Any physical or chemical effect, i.e., heat, light, or drugs, which interferes with the synthesis of the pigments (chlorophyll, vitamin A, retinene) disrupts the *fine structure* of the photoreceptors (Wolken, 1961a; Dowling and Wald, 1958).

Since the photoreceptors contain large quan-

ties of lipid, it is difficult to solubilize them in water, but they can be solubilized with detergents (e.g., 1-2% digitonin). Colloidal suspension of the chloroplasts and retinal rods can also be prepared by ultrasonics. These pigment-complexes, referred to as chloroplastin and rhodopsin, have absorption spectra similar to the intact chloroplast and retinal rod. Both chloroplastin and rhodopsin exhibit photochemical activity in solution. For rhodopsin, a light dependent reaction, analogous to that occurring in the intact retinal rods can be measured spectroscopically. Retinene, depending on the organic solvent, has an absorption maximum near $380 \text{ m}\mu$, but when it is complexed with opsin to form rhodopsin, the shift in absorption maximum is toward the red to around $500 \text{ m}\mu$. Retinene can exist in a number of different configurations corresponding to the possible cis-trans isomerization around the different double bonds of these molecules (Fig. 2). The 11-cis (neo-b) isomer is the most easily formed upon irradiation, and the most sensitive to temperature and light (Wald, 1959). Light "bleaches" rhodopsin and results in a shift of the absorption peaks through a series of transients to retinene and opsin. When chloroplastin is bleached by light, no similar shifts in spectra are observed; there is a steady decrease in optical density, and

the chlorophyll absorption maximum at 675 m μ , eventually disappears. However, with chloroplastin during the Hill reaction with the dye (dichlorobenzeneindophenol), it was found that an absorption peak at 488 m μ (one of the carotenoid absorption peaks) increases in optical density in the light and then decreases in the dark to its original density (Eversole and Wolken, 1958). This reaction can be repeated by placing the reactants alternately in light and darkness without further addition of dye, indicating that there is increase in the amount of carotenoid absorption at 488 m μ . This reaction has analogies in some ways to the light bleaching and dark regeneration of the rhodopsin solution.

Chloroplastin and rhodopsin molecular weight M have been calculated from structural considerations where $M = \frac{\pi D^2 T s L n}{4 N}$, where D is the diameter of the photoreceptor; T is the thickness of the dense layers; s is the density of the protein (if a lipoprotein, the density would be closer to 1.1); L is Avogadro's number 6×10^{23} ; n is the number of dense layers; and N is the number of pigment molecules per photoreceptor. The molecular weight calculated from this equation for *Euglena* chloroplasts is 21,000, and for frog and cattle rhodopsin is 60,000 and 40,000 respectively (Wolken, 1961b and 1963).

If each chloroplastin micelle is estimated to

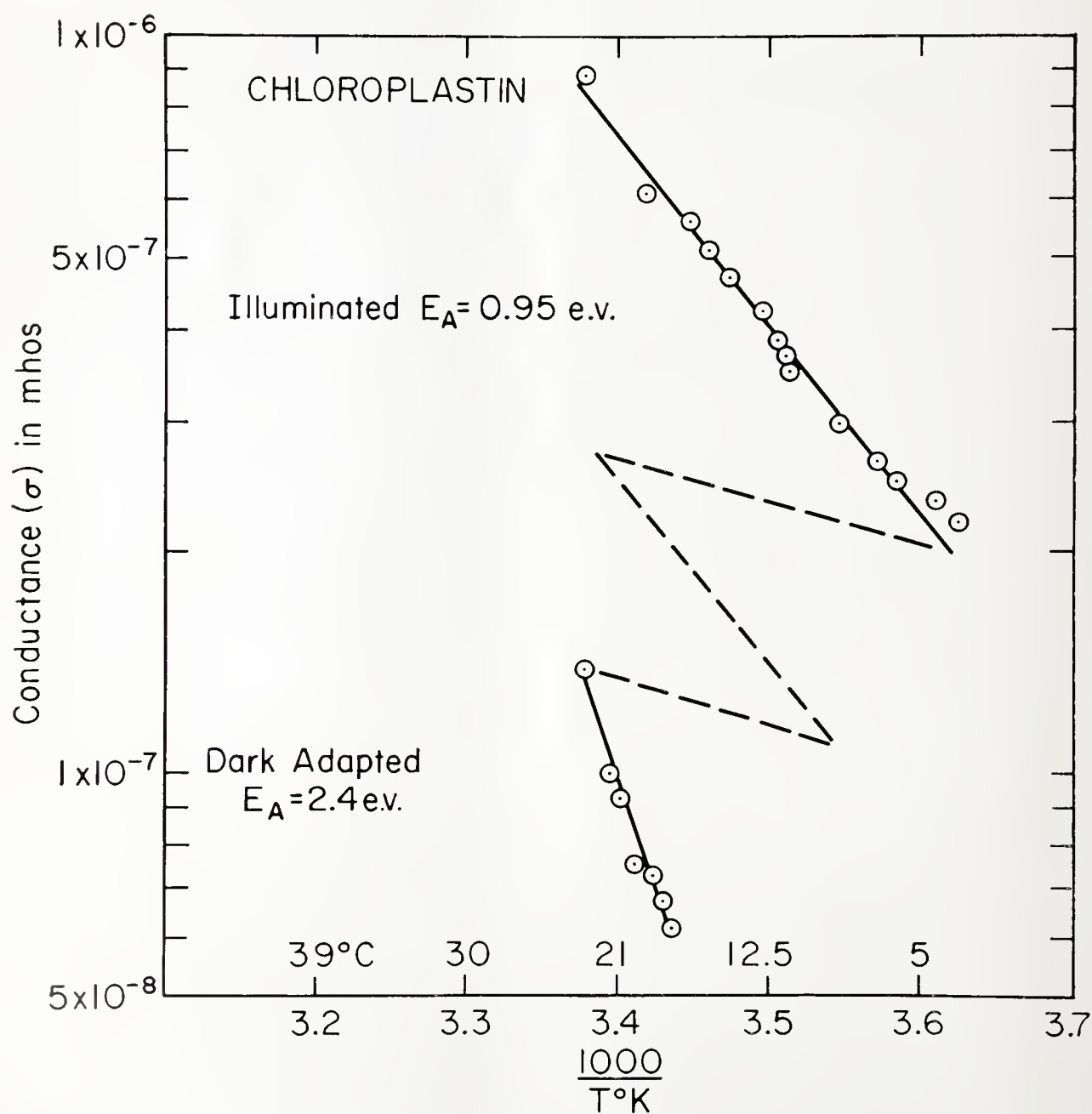


FIGURE 3.
Activation energy of chloroplastin (*Euglena*).

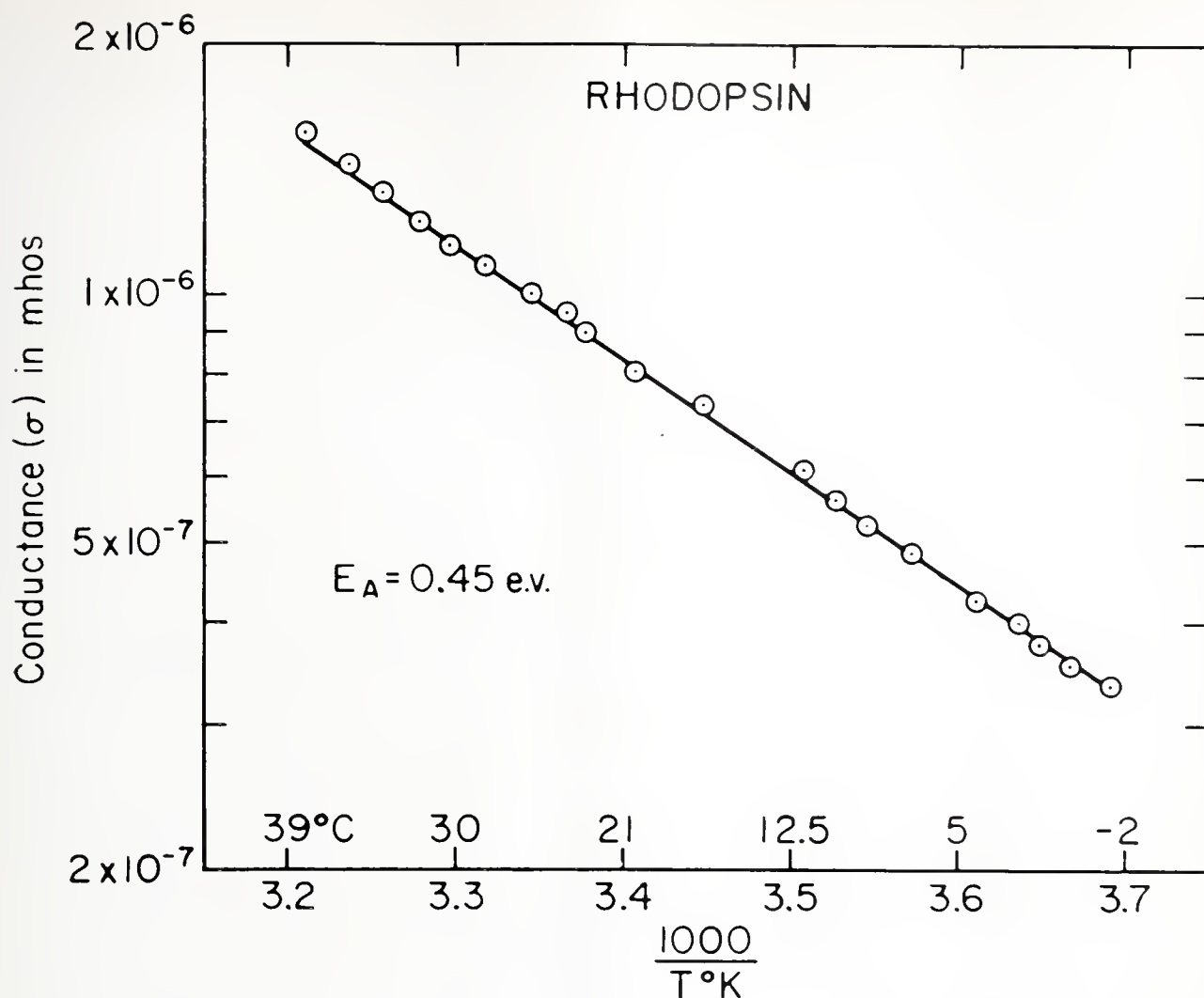


FIGURE 4.
Activation energy of frog rhodopsin.

be about 200 Å in diameter it would contain about 225 chlorophyll molecules, 55 carotenoid molecules, one molecule of cytochrome and protein; its molecular weight would be of the order of a million, which is in agreement with the "chlorophyll holochrome" of Smith (1960). Sonicated chloroplasts and retinal rods reveal particles of the order of 0.2-0.1 μ , and, in electron micrographs each of these are observed as aggregates of particles 50-75 Å in diameter.

The ordered structure for the photoreceptors has led to the idea that they have a close relation to a solid state system. That is, that they exhibit such properties of the solid state as electronic energy transfer or electronic charge transfer.

Experiments have been carried out with chloroplasts and films of extracted chlorophyll, chlorophyll plus β -carotene, or β -carotene alone, spread on various surfaces. Such models have demonstrated that there is a photoconductive mechanism of energy transfer (Arnold and Clayton, 1960; Rosenberg, 1961).

The results for dark-adapted chloroplastin samples show an activation energy of 2.4 e.v.; after 30 minutes illumination in white light, the activation is 0.95 e.v. The dashed lines (Fig. 3) show typical behavior of the chloroplastin which had been illuminated, but which was not illuminated while measurements were being taken. This seems to indicate that the energy received from illumination was lost by some process which reduced the number of charge carriers available for conduction. Similar measurements made on rhodopsin in the dark show an activation of 0.45 e.v. (Fig. 4).

In addition, we have examined the kinds of chemical systems that give rise to "crystalline" structures. One such model is referred to as the Liesegang Ring phenomenon, in which the impregnation of potassium dichromate and silver nitrate in protein forms colored precipitated complexes. Light can modify these periodic structures if the precipitated molecules are light sensitive. Another model is that of dye-complexed

cholesteric liquid-crystals. Aqueous digitonin solution (1-2%, the concentration for extracting the pigment-complex from the photoreceptors) has a very strong attraction for many complex dye molecules, e.g., chlorophyll, retinene, and also has structural properties of a liquid crystal.

In the chloroplastin micelles we have chlorophyll, carotenoids, cytochrome, lipids, and protein, essentially in the same relative concentration and orientation as in the chloroplast; similarly, in the rhodopsin micelles we have retinene, opsin, and lipid in the same relative concentration and orientation as in the retinal rod outer segment.

The micelle structures contain about the right number of pigment molecules for light absorption, and whose energy can be transferred to initiate the biochemistry.

Therefore, the crystalline-like structure for the orientation of the pigment molecules in the

photoreceptors is not only an efficiency mechanism for light capture; it may well be a critical functioning device (Wolken, 1962).

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Viral Hepatitis on Taiwan

S. C. Sun, S. M. Chuong, and J. W. Fresh (USN Hosp, Research Unit 2, Box 14, APO 63, San Francisco) *Arch Intern Med* 115:261 (March) 1965

Icteric viral hepatitis was determined in a civilian population served by a provincial hospital and in a military population served by a military hospital. The incidence of viral hepatitis in various occupational groups was compared and showed the medical personnel, both civilian and military, to be the highest. Various clinical liver function tests were utilized and demonstrated changes during the course of the disease. Histological studies were done, and the findings were classified into four categories. The ratio of

the incidence of the anicteric form of viral hepatitis was determined in the confined military district.

CORRECTION

In the June issue of the Journal the caption for the photo taken at the Fifty Year Club Breakfast incorrectly identified Dr. J. M. Robinson of Little Rock as Dr. G. W. Ish. Dr. Robinson is a member of the 50 Year Club of American Medicine, as well as the 50 Year Club of the Arkansas Medical Society. The Journal apologizes for the error.

Conversion, Hypochondriasis and Somatization: A Diagnostic Problem for Internists

Henry P. Coppelillo, M.D.*

FOR A PERIOD of about 4 years, internists and psychiatrists of a large veterans' hospital participated in seminars which were designed to discuss the psychologic factors in organic disease. Of all the topics discussed, the most interesting from the theoretical point of view, and useful clinically, were the concepts differentiating conversion symptoms, hypochondriasis, somatization and psychosomatic illness.

When the internist determines that a symptom has a psychogenic component, it is extremely important to him and to his patient that he evaluate the severity of the psychopathology, as well as attempt to predict the course and prognosis of the underlying emotional illness. His therapeutic posture, of course, will differ widely, depending on what he discovers, and a suicidal depression will evoke a much different response than a hysterical symptom. Let me say at once that even the most astute and experienced clinician has been astounded to find that what he considered a mild agitation turned out to be a violent agitated depression. But the more dynamically oriented concepts we have at our disposal, the more weight we can give to clinical signs and the less the chance of being fooled.

Evaluation of a psychologically determined symptom, I believe, is impossible without some understanding of the psychodynamics involved in the formation of symptoms and some general notions of personality development.

When a child is born he is infinitely more well equipped for proprioception than for reception of external stimuli. As sensations from his own body are perceived, discharge of need tension is attempted in a diffuse and uneconomical way. Whatever motor behavior there is is gross and non-purposive. The participation of the autonomic nervous system is marked but apparently non-adaptive. Though the child expends great quantities of energy, no problems are solved, and the external environment must provide for him in the form of mothering if the child is to survive. It must be stressed, however, that early in

life the child, due to his peculiar neuro-physiologic state, cannot appreciate the intervention of the environment in a way which will allow it to lay down a memory trace. It continues to exist in a state that does not contemplate self or non self, and there is little to distract it from perception of its own sensation.

This state, however, cannot long endure! The maturation of his central nervous system and inevitable exposure to some frustration forces him to recognize the presence of an entity in the environment which meets his needs. (To imagine an environment without frustration, we would have to envisage a milieu in which need tensions could be decreased constantly before they reached perceptible proportions.)

And thus, an infant slowly and gradually shifts the focus of his attention from his body and its processes to the mother or the mothering person. The investment he makes in this relationship is extremely intense and the interaction with this person will form a template which will mold all future relationships. His psychic energy is deflected away from its narcissistic direction and this helps to conceptualize "self" as a discrete entity, separate from the rest of the world. His attachments now are no longer because of the all encompassing lack of differentiation but because he has acquired the ability to form an "object relationship." As a result the child is not so intensely sensitive to the sensations of his own body even though they continue to reach the higher centers and contribute to the maintenance of a body image.

*As the child matures further, he and his mother enter into a subtle, complex, symbiotic relationship which is in constant flux. The child's behavior, determined by his genetic endowment and the current state of his need tensions, evokes responses from his mother. The child's subsequent behavior indicates that he perceives these responses as ranging on a continuum from totally gratifying to totally frustrating. Behavior patterns which meet massively frustrating responses tend to be dropped, whereas those which elicit

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strongly gratifying responses tend to be repeated unchanged. The most important parental responses for maturation are those which are neither so frustrating that they squelch the child's capacity to express his needs, nor so gratifying that the child's mode of expression remains unchanged. These are the parental responses which recognize the child's needs but frustrate immature modes of meeting his needs. They demand that ever more adaptive and appropriate behavior be employed by the child. In a word the parent has exerted *optimal frustration*.

*For example, a child of four expresses anger and rivalry to a sibling of eighteen months with a direct physical attack. In one case, because of mother's attitudes toward aggression, or because of the nature of the attack, the mother may be overwhelmed. Her responses are so threatening to the child that he must avoid not only the behavior but even the ideas and feelings associated with the behavior. So it is that a complex of ideas, affects and motives become repressed and lost to the conscious control of the child's personality.

*In another instance the mother may unconsciously gratify a child after such an aggressive attack, because of some unrecognized neurotic conflict of her own. The approbation for the behavior may be communicated so subtly as to pass unnoticed by all but the most sensitive observer. It can occur in the form of treats always granted after an aggressive act, or as in a case that I saw in consultation, in the form of a faint flicker of a smile and a twinkle in the eye of the mother who was describing the ravaged neighborhood left in the wake of a son to whom she referred as "my little terrorist." These children are loath to alter their behavior, and immature, maladaptive modes of discharge persist in their make up.

*The most likely response to the behavior we have described, however, is that the parent unambivalently stops the child from hurting the younger sibling and then empathically recognizing the competitive needs of the older child, makes possible their gratification by assigning him a special task, or granting him a special privilege that distinguishes him from his younger rival. The recognition of the older child's competitive aggression and the provisions for its socially appropriate gratification need not be explicit or even conscious in the parent. The raw, naked,

aggressive impulse has been channeled into a more useful and rewarding activity.

*This is one of the important, if not the principal transaction by which personality equipment for psychological adaptation evolves along a continuum from primitive infantile drives. This evolution is in continuous flux throughout life, with its most ample fluctuations in childhood and adolescence. An example of this is the human voice. As an infant, the child seeks avoidance of pain and procurement of gratification with cries and shouts. Later he finds he can be gratified more quickly and precisely if he can articulate his demands by utilization of phonation and language. Still later he finds that if he adds persuasion to his armamentarium he is even more well equipped. And so it goes until as an adult the ability to speak can be coordinated with the highest order of intellectual functioning for the purpose of pursuing satisfaction. The fluctuation of behavior along these continua of development is not always in the direction of progression. There are frequent and important regressions as well. Powerful affects such as grief, rage and fear frequently find their discharge and expression in shouting or crying, since their tensions cannot be adequately discharged by highly integrated and intellectualized behavior. The individual must regress to express them. Thus, the gratification and therefore discharge of need tensions is regulated by the equipment which the personality has acquired through its genetically determined endowment and has developed by its contacts with the environment.

*Although it is very likely that all human beings experienced some massive, rather than optimal frustration during their development, most often, the relationship with the first object was sufficiently gratifying to insure that a solid template was formed and a need for object relationships became a permanent way of life.

Relating then to these objects, the child changed raw gross impulses into an armamentarium which provided for adaptation into the particular culture into which he was born.

From this developmental framework we can now turn to an investigation of the formation and significance of psychogenic somatic symptoms.

In the case of conversion symptoms we frequently see a relatively communicative, articulate personality who has lost little or none of his investment in the outside world. The symptom they present is most often some disturbance of motor

*These 6 paragraphs are quoted from "The Journal of Pediatrics, in press."

or perceptual function. More rarely it involves a viscus or viscera. Almost invariably it commands attention by its dramatic quality but the bearer of the symptom often shows astonishingly little anxiety about the possible cause of the affliction. This latter quality the French author called "La Belle Indifference." These patients demonstrate stubborn resistance to appreciation and understanding of their own behavior and how it affects others.

A twenty-seven year old, white female was sent for psychiatric care because of paresthesias of the lower abdomen and thighs. These consisted of itching and tingling sensations and she was sure she had multiple sclerosis. They had begun approximately one year earlier, about 6 weeks after the death of her mother from a carcinoma of the liver. Medical work up at several centers had been negative but she had refused to accept the diagnosis of "no organic pathology" and was more invested in accusing the diagnosticians of insensitivity and lack of erudition than she was concerned about the possible outcome of her imagined Multiple Sclerosis. She was finally referred for psychiatric care by a forceful and directive internist who convinced her she was simply indulging her whims and dissipating her money by shopping for the diagnosis she wanted.

During the course of her treatment she adamantly refused to be convinced of the psychogenesis of her ailment and wanted simply to recite with her therapist the differential diagnosis of itching with a Medical vocabulary that any Junior medical student might envy. A chink in the defensive armor came when she reported with great imagination that a "sex maniac" had called her on the telephone the night before her session. He had given her a step by step recital of his sexual techniques and prowess while she outraged, sputtered and demanded that he "hang up the phone that instant or" she would give him the trouble "he was itching for." When asked why she hadn't hung up, her answer was that she didn't want the man to think she was frightened, and because he would have called back anyway. Gently and gradually some slight gains were made in the area of helping her to see that her own attitudes and ideas might bear some investigation.

The pathogenesis of the conversion hysteric's symptoms begins when modes of life which had

been adequate to discharge need tensions and secure gratification, become frustrated or inhibited.

In an effort to reestablish psychic homeostasis the patient will regress to modalities of living which had been useful earlier in life. But in so doing he also automatically reinvests in thoughts, fantasies or actions which had to be repressed because of the real or fancied disapproval of a significant person who had been in the patient's environment. This significant person is now represented by an endopsychic agency which we call conscience or super-ego. These forbidden impulses from the past are directed to a person or situation in the present and as they threaten to re-emerge into consciousness the super-ego stimulates the personality to experience the same anxiety it felt when the parental figure originally disapproved. To avoid this anxiety the personality defends itself with an attempt to check the unwelcome impulse. Impulse and defense coalesce in the case of conversion in a compromise formation we call a symptom.

In the case cited the girl's mother had provided her not only with an outlet for her aggressive energies but was also insurance against having to face her sexual impulses. Mother had been a heavy drinker and the patient felt that she could not marry or even date seriously because "mother was her cross to bear." The patient relied almost exclusively on fantasy and reading for gratification of sexual impulses. After mother's death she could no longer permit herself to be stimulated because she had no excuse now not to indulge in a normal sexual life. She attempted regression by dating an older man "for sympathy." Immediately after this she began to itch and tingle around her thighs and abdomen and was "forced to scratch" till she bled. As the patient associated and gave her thoughts freely it became clear that she was stimulating herself by touching and having these sensitive areas examined frequently. At the same time punishment was being meted out in the form of scratching and the inhibition of her sexual impulses was accomplished because, as she said, as long as she was ill she could never consider marrying or dating steadily.

Although this is a superficial and incomplete dynamic formulation of a complex case it demonstrates how impulse and defense are both expressed symbolically in the conversion symptom. Notice, too, how the symptom has brought a resolution of conflict, and even though it curtails

the activity of the patient, it relieves them of the responsibility of having to face impulses which to them are distasteful.

Somatization is a phenomenon about which relatively little has been written. Not as dramatic as either conversion or hypochondriasis, it seems to have been relegated to a limbo of psychiatric inattention. And yet, in the experience of most internists and general psychiatrists it is a frequently encountered event.

As I have seen it and understand it, it is a symptom, usually ill defined and without symbolic meaning which represents an unpleasant psychic state in a given individual. This state is usually chronic depression or chronic tension which the patient is either not sufficiently psychologically minded or articulate to verbalize.

These patients complain of generalized weakness, chronic fatigue, lack of energy, inability to feel refreshed by rest, or they report tension and aches of one or another muscle group. One patient seen in consultation was referred by a dentist because he had ground down on his dental plates until he broke them. His masseters were aching from the exertion but he was totally incapable of relaxing. It became rapidly clear during the interview that he was staging a heroic war against depression, and as this was alleviated, so was his symptom. When encountering this symptom the internist would do well to look actively for the vegetative signs of a depression, since somatization is frequently a harbinger of a severely depressed state. One might say that in somatization the patient is using body language to express a plea for help to alleviate a psychic state for which he has no words.

Contrast this with the communicative elan of the hysteric. Notice too how the symptom in somatization neither bears symbolic meaning nor affects a resolution of conflicts. In contrast with hysterics the somatizing patient does not seduce people with dramatic symptomatology but rather alienates them by communicating a kind of black despair. Interns are frequently prone to assign them a porcelain index of 4+ and relegate them to the Mental China Closet where they feel all such cases should reside. Not infrequently even more seasoned clinicians are worn down by ineffectiveness of most suggestions and cures.

Hypochondriasis may be contrasted to both conversion and somatization. Let us begin by saying that in using this term we do not mean the person that passes from one imaginary ill-

ness to another, or the chronic complainer. Rather, we are speaking of a desperately ill person who is experiencing the early signs of the most serious of psychiatric ills; a schizophrenic psychosis. In this instance the afflicted person, like the hysteric, finds that a mode of discharging need tension, which had previously functioned, now becomes unavailable to him. He begins to regress in an effort to find modes of discharge which had been successful earlier in life but finds the regression turning into a frightening landslide which affords no pause. The regression continues to the point where the now fragmented personality is functioning in modes which are similar to the way it functioned *before* it established its shaky and ill forged template for object relationship. No longer are there clear cut boundaries between self and non self and reality becomes an extremely subjective phenomenon. Intrapsychic thoughts may be experienced as external voices, and natural phenomenon of the universe may now be thought to be mere extensions of the maternal processes of the organism. And yet in spite of this devastation there is still a shred of the personality which can observe the process and sometimes report the terror that this havoc elicits.

One of the most horrifying experiences that the pre-schizophrenic reports is that which we mentioned earlier was a natural phenomenon of the very young infant. He once more becomes exquisitely attuned to sensations emanating from within his own body. Now, however, with some portions of his personality functioning he attempts to make some sense of them and reports them to his doctor in bizarre, grotesque terms. He may tell of feelings like worms eating his liver, or bugs crawling just under his shin, or more recently radiation causing blood to congeal in the vessels. The symptoms are frequently described in an anguished, anxiety laden manner and irrational thoughts creep into his account. Preoccupation with death, mutilation and disillusion of the body appear in dreams and fantasies. Following is a story written for an English class by a 10 year old girl several weeks prior to her admission to a state hospital for a schizophrenic psychosis. Her mother had died in the same state hospital about one year earlier and her father had shortly thereafter remarried a widow whose first husband had died in a state hospital.

"OLD MAN MASHER"

Long ago, in a village, lived Old Man Masher.

They called him Old Man Masher because he had the horrible reputation of mashing other people.

This is how it worked. Anytime anyone came to his bone-fenced house he would tell them to come in. Then he would take them down to dingy dark cellar, where he kept his gigantic potatoe masher. Then he would merely chop off their heads and shove them under his potatoe masher. When they were done being mashed they made the best hash you ever tasted. Or at least he thought so.

If anyone tried to run away he'd simply chase them around with his devil's pitchfork until he caught them. He had got the pitchfork from Santa Clause last Christmas.

One day a little beggar girl came to his house. She was pretty scrawny, but he decided to use her anyway. Ane her head was pretty hollow so he knew it would make a splendid cooky jar.

Another day a square came to his house. Old Man Masher decided to use him for a chair because he was so square. So he did.

Old Man Masher was always seen waring a different color of eyes to match the hair ribbon he happened to be waring on his beautiful green hair. He kept all his eyes in a drawer, which he called his own "Private Eye Drawer." The next day a soldier, which was coming home from the war, came to his frightening house. So Old Man Masher took him down to the cellar. Just as he was about to chop the solder's head off. He fell through the trap door which he used for disposal of the heads that were slightly cracked. So that was the end of Old Man Masher. But it was very unfortunate because after that the soldier took Old Man Mashers place and it happened all over again.

I think the grotesque and bizarre preoccupation with the body, its functioning and dissolution are clear in this story. It is with these concepts and in this context that the prepsychotic patient announces withdrawal of his psychic energy from the world and its reinvestment into his own body. Here, as in hysteria, there is a resolution which is attempted and all too often successfully effected.

In considering psychosomatic ills one is immediately struck by the number of truly crucial questions as yet unanswered. However, evidence seems to point to certain facts which at least give us an orientation to the nature of the illness. Psychosomatic illnesses seem all to involve the

autonomic nervous system to a great degree.

As was mentioned above, in the earliest days of life the energy of impulses is discharged immediately with random motor activity and autonomic responses. As the equipment for perception and reality evaluation are refined by maturation and development, the capacity to think and to act purposively reduces the intensity and diffuseness of the organism's response to internal or external stimuli. The hungry child of two does not show the vasomotor instability or respiratory rate changes while eating that the three month old demonstrates. The diminished intensity of his response has raised the flood gates to the autonomic nervous system, and now only more powerful emotions can produce those discharges which were so common earlier. When it happens that development does not proceed smoothly and these archaic modes of response persist, the autonomic system is chronically susceptible to being charged with undue stimulation. If now we add to this susceptibility somatic compliance which has been genetically determined or acquired by early environmental factors, the organism is prepared to respond to an organic or psychic insult with a psychosomatic ill.

Evidence is beginning to accumulate that certain types of conflicts are specific not only for keeping the threshold of autonomic responses low but also for precipitating a given psychosomatic illness. Typical examples of this are separation threat and asthma; rage and hypertension; and ungratified dependency needs and peptic ulcer.

Attempts of early investigations to make some sense from the complex mosaic of emotions and bodily responses led the investigators to coin some fanciful phrases which sought to symbolize rather than explain the pathogenesis. Phrases like "wheezing is the cry for mother," in asthma, or "eating away his own stomach lining," in ulcer were unfortunate dramatic anthropomorphizations of pathologic processes which have been kept alive by their dramatic quality and by unsophisticated ridicule of psychosomatic investigations. Psychosomatic symptoms do not have a symbolic meaning nor can they be considered a symbolic resolution of conflict.

In clear cut and pronounced cases of one or the other form of somatic symptoms I am sure the internist is quite comfortable in arriving at a diagnosis. I hope that these relatively superficial and schematic concepts prove useful in determining the nature of more subtle pathology.

LOMOTIL *Pharmacologic Activity*

The significant pharmacologic actions of Lomotil are summarized as follows:

Evidence indicates that Lomotil acts directly on the intestinal musculature to inhibit excess peristalsis.

Lomotil is not known to inhibit nonpropulsive intestinal movements.

Roentgenograms demonstrate that this activity occurs within two hours after oral administration and persists for at least six hours.

Comparative studies in the rat show Lomotil to be more effective in inhibiting fecal excretion than either codeine or morphine.

Analgesic, anticholinergic, mydriatic and gastric secretory effects have not been significant.

Reduction of propulsive motility with Lomotil relieves spasm and cramping, allows physiologic absorption of fluid and reduces frequency of evacuations to provide prompt, symptomatic control of virtually all diarrheas.

LOMOTIL®

Each tablet and each 5 cc. of liquid contains:

diphenoxylate hydrochloride 2.5 mg.

(Warning: May be habit forming)

atropine sulfate 0.025 mg.

tablets • liquid

slows propulsion



relieves distress



stops diarrhea



Precautions: Lomotil is an exempt narcotic preparation of very low addictive potential: more than three million prescriptions have now been written for Lomotil. Recommended dosages should not be exceeded. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates.

Side Effects: Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness and insomnia.

Dosage: For full therapeutic effect—Rx full therapeutic dosage. The recommended initial daily dosages, *given in divided doses*, until diarrhea is controlled, are:

Children:

- 3 to 6 months—3 mg. ($\frac{1}{2}$ tsp.* t.i.d.)
- 6 to 12 months—4 mg. ($\frac{1}{2}$ tsp. q.i.d.)
- 1 to 2 years—5 mg. ($\frac{1}{2}$ tsp. 5 times daily)
- 2 to 5 years—6 mg. (1 tsp. t.i.d.)
- 5 to 8 years—8 mg. (1 tsp. q.i.d.)
- 8 to 12 years—10 mg. (1 tsp. 5 times daily)

Adults:

- 20 mg. (2 tsp. 5 times daily or
- 2 tablets 4 times daily)

**Based on 4 cc. per teaspoonful.*

Maintenance dosage may be as low as one fourth the therapeutic dose.

Lomotil is a brand of diphenoxylate hydrochloride with atropine sulfate; the subtherapeutic amount of atropine is added to discourage deliberate overdosage.

SEARLE

*Research in the
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TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



Hirschsprung's Disease: A Diagnostic Dilemma*

By Barry Gerald, M.D.**

HIRSCHSPRUNG³ in 1887 described in two children a peculiar form of constipation characterized by marked dilatation of the colon except for a non-dilated rectal segment. Little else was known of the disease until 1941 when Tiffin⁹ recognized the importance of the absence of ganglion cells in the myenteric plexus of the distal narrowed segment. The partial obstruction in the narrowed segment is apparently due to the inability of the aganglionic segment to transmit a propulsive peristaltic wave although it has been shown to contract as a mass action.⁴ Swenson⁷ in 1949 devised a surgical procedure to eradicate the distal narrowed segment with good functional results.

The majority of patients have only a short aganglionic segment although, rarely the area of aganglionosis may extend through the entire colon and small bowel. Some cases³ have been reported with aganglionosis of a portion of the colon but without involvement of the rectum; these so called "skip areas" are thought to occur rarely if at all.¹ Therefore, the presence of ganglion cells on rectal biopsy excludes the diagnosis of Hirschsprung's disease; the absence of ganglion cells establishes the diagnosis.

The following three cases illustrate the spectrum of the disease.

Report of Cases

L.M. (16-43-52) This Negro male was brought to the University of Arkansas Medical Center at 4 days of age after having no bowel movements

since birth. Physical examination revealed abdominal distension. Roentgenograms of the abdomen showed mild gaseous distension considered within normal limits. A barium enema was performed and considered normal. The patient improved symptomatically and was discharged. He returned at 7 months of age with persistent constipation, requiring frequent use of laxatives and enemas for relief. A repeat barium enema was



FIGURE 1.

(L.M.) Barium enema done at 4 days of age. Note the normal caliber of the colon throughout its length.

*Presented in part at the Southern Radiologic Conference, Point Clear, Alabama, January 29-31, 1965.

**Children's Hospital of the East Bay, Oakland, California.



FIGURE 2.

(L.M.) Post-exacuation portion of barium enema at 7 months of age. A moderate megacolon is now present and the most distal portion of the rectum appears narrowed. ("R" marker is incorrect.)

again considered normal. The patient remained constipated but otherwise did reasonably well until five years of age when he was admitted with a history of vomiting, diarrhea, and abdominal pain for three days. Roentgenograms of the abdomen showed multiple distended loops of bowel filled with both fluid and gas. After treatment with enemas and intravenous fluids the patient improved. A barium enema showed a marked megacolon; however, on this occasion a distal narrowed segment involving the rectum was shown on oblique spot films. A delayed film showed poor evacuation. An excretory urogram was within normal limits. A diagnosis of Hirschsprung's disease was made and confirmed by rectal biopsy.

COMMENT: This patient illustrates the clinical course in the milder form of Hirschsprung's disease. He was thought to be obstructed at 4 days of age but improved spontaneously. In any newborn who appears to be obstructed, Hirschsprung's disease should be considered. Some are explored but no cause found, the aganglionic segment not being recognized.

This patient remained constipated requiring laxatives and enemas for relief. The final admission at 5 years of age was prompted by diarrhea and vomiting. This represented colitis, a frequent complication of patients with Hirsch-

sprung's disease and often fatal in the very young child.

Because colonic enlargement had not had time to develop, the barium enema done at 4 days of age showed neither megacolon nor a distal narrowed segment. In the very young child the only radiographic finding may be poor evacuation. Retention of barium 24 hours after the enema should be viewed with suspicion. The examination at 10 months of age does show in retrospect, moderate colonic enlargement with a distal narrowed segment. The barium enema done on the final admission at five years of age was characteristic of Hirschsprung's disease as shown by a marked megacolon, a narrowed distal segment and poor evacuation.

B. H. (21-12-14) This Negro male was seen at 3 days of age with absence of bowel movements and increasing abdominal distension. Roentgenograms of the abdomen showed mildly distended loops of bowel. With insertion of an enema tip into the rectum in preparation for a barium enema, a large amount of sticky meconi-



FIGURE 3.

(L.M.) Roentgenogram done at 5 years of age showing multiple distended loops of bowel filled with gas and fluid. At this time, the patient clinically had colitis.

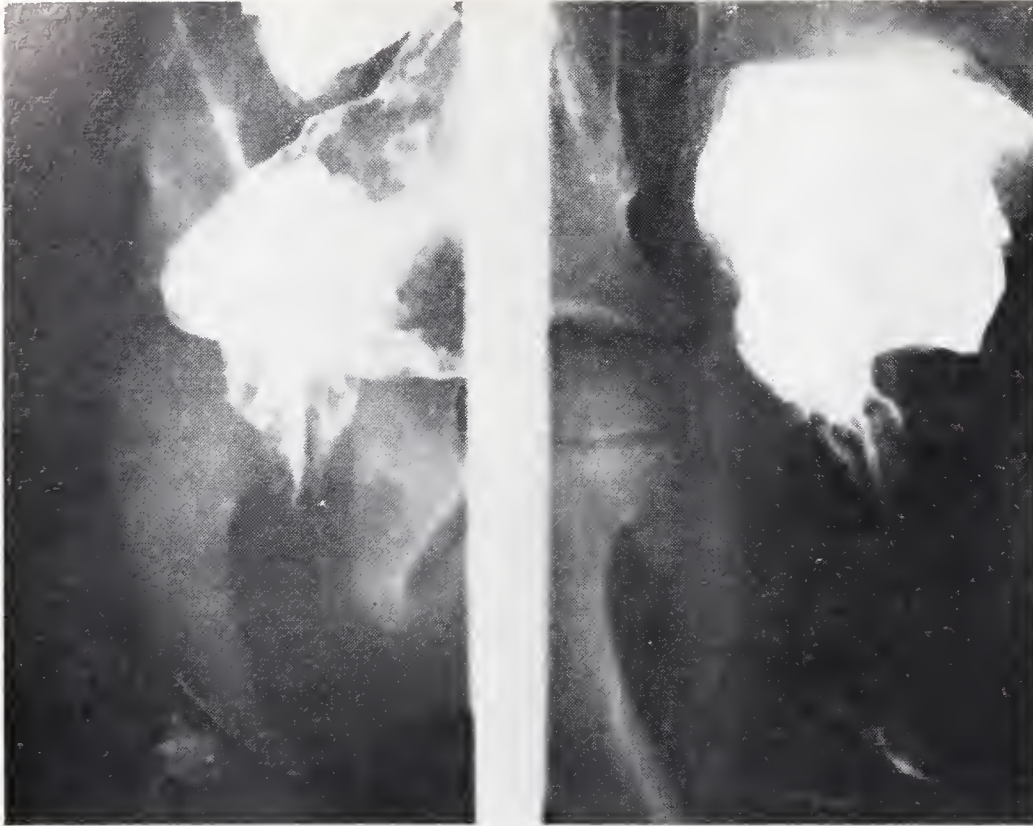


FIGURE 1.

(L.M.) Oblique spot films obtained during the barium enema done at 5 years of age. The narrowed rectal segment is well shown.



FIGURE 5.

(L.M.) Post-evacuation film showing poor evacuation and marked colonic enlargement.

um was passed. The subsequent barium enema was considered within normal limits. The child was discharged with a diagnosis of meconium plug syndrome. Subsequently, he was chronically constipated, required enemas and laxatives for relief and was returned to the hospital at 18 months of age because of a particularly stubborn episode of constipation. On physical examination he was distended with palpable fecal masses. A barium enema showed a rather marked megacolon. The rectum and distal portion of the sigmoid colon were narrowed with an abrupt transition point in the mid-sigmoid. Roentgenograms obtained 24 hours after the enema showed retention of the barium. A rectal biopsy confirmed the diagnosis of Hirschsprung's disease. At corrective surgery aganglionosis extended to the level of the mid-sigmoid region.

COMMENT: This patient was also felt to be obstructed at birth but was relieved by passage of a meconium plug. He illustrates that the meconium plug syndrome can co-exist with Hirschsprung's disease. In any patient with obstruction secondary to the meconium plug syndrome, the possibility of an underlying aganglionic segment should be considered and the patient observed carefully for the development of constipation over the next few months. This patient also illustrates retention of the barium ene-



FIGURE 6.

(B.H.) Barium enema at 18 months of age showing colonic enlargement. Note that the expanded rectal balloon partially obscures the narrowed distal segment.

ma after 24 hours, a frequent finding in Hirschsprung's disease.

J. C. (22-77-61) This white male was noted by the mother to be distended 24 hours after birth. After 4 days, no stools had passed and the abdominal distension had increased. A physician was consulted and multiple enemas were given. These were initially followed by the passage of meconium but subsequently the patient became more distended, beginning to vomit bile-stained material. At 9 days of age he was transferred to UAMC. Examination revealed a malnourished, acutely ill child with marked abdominal distension. Roentgenograms of the abdomen revealed multiple distended loops of small and large bowel with air fluid levels. A barium enema showed narrowing of the colon which began at the rectum and extended to the mid-descending colon. The transverse and ascending portion of the colon were dilated. A diagnosis of Hirschsprung's disease with the point of transition in the mid-descending colon was made and confirmed by biopsy at laparotomy. A mid-transverse colostomy was done but the patients post operative course was stormy and he expired at 16 days of age.

COMMENT: This patient demonstrates a



FIGURE 7.

(B.H.) Lateral spot film obtained during the barium enema without the rectal balloon expanded showing the narrowing of the rectum and distal sigmoid colon.



FIGURE 8.

(B.H.) Post-evacuation film again showing the megacolon and distal narrowed segment as well as poor evacuation.

more severe form of Hirschsprung's disease with a long aganglionic segment and obstruction at birth unrelieved by symptomatic therapy. Some authors¹ have stated the degree of obstruction in Hirschsprung's disease does not correlate well with the length of the aganglionic segment. However, usually the longer the segment the worse the prognosis. Colitis is often a fatal complication. Early diagnosis and surgical intervention in these patients are essential.

Discussion

The classical clinical finding of Hirschsprung's disease is constipation beginning at or shortly after birth. The severity varies from obstruction in the newborn which requires surgical intervention, to mild constipation recognized only after careful questioning of the parents. In the less severe cases the constipation may become progressively severe or may be fairly well controlled with laxatives and enemas. Fecal soiling is *not* a problem. Growth may be retarded. Abdominal distension with palpable fecal masses is often present. In those patients with aganglionosis of at least the rectum, the anal sphincter will be tight

and the rectum will be empty of feces. If only the anus is involved, feces may fill the rectum.

To avoid water intoxication saline enemas should be used in preparing these patients for the barium enema. To demonstrate the narrowed segment, oblique spot films are usually sufficient. These may be obtained during filling or after the initial evacuation. A rectal balloon should not be expanded when obtaining films of the rectum as the filled balloon may obscure the narrowed segment. Poor evacuation is a consistent finding; often the only radiographic finding in the newborn. Retention of barium 24 hours after the enema is strongly suggestive of Hirschsprung's disease.

Hydronephrosis of varying degree is not uncommon in Hirschsprung's disease. In most cases it appears to be secondary to partial ureteral obstruction at the pelvic brim by the dilated sigmoid colon. Hydronephrosis is a frequent finding in psychogenic megacolon, apparently also sec-



FIGURE 9.

(J.C.) This roentgenogram was made on admission at 11 days of age. Note the multiple distended loops of small and large bowel with air fluid levels, representing mechanical obstruction.



FIGURE 10.

(J.C.) Barium enema done at 11 days of age. The ascending and transverse portions of the colon are dilated as well as the proximal descending colon. From this point it is markedly narrowed, representing a long aganglionic segment. The exaggerated mucosal pattern in the dilated portion of the colon is probably related to colitis.

dary to the large sigmoid colon, partially obstructing the ureters are the pelvic brim. Swenson⁶ suggested diminution in the number of ganglion cells of the bladder as a possible etiology; however, this is a rare finding.

In the very young child the meconium plug syndrome may be a confusing differential problem. This syndrome is due to partial obstruction of the large bowel by sticky, thick meconium. It is not related to cystic fibrosis as is meconium ileus. The meconium plug syndrome is transitory and will clear by three to four days of age. Constipation persisting beyond this time should not be attributed to this syndrome. Radiographically the inspissated meconium may be demonstrated as a filling defect in the barium column. After passage of the plug, these patients are asymptomatic and suffer no further difficulties. As shown by case 2, the meconium plug syndrome can co-exist with Hirschsprung's disease.

The most common process to differentiate from Hirschsprung's disease in the older child is psy-

chogenic megacolon or functional constipation which is usually related to poor toilet training. In contrast with Hirschsprung's disease the onset of constipation is noted about two years of age and fecal soiling is often present.² On physical examination the rectum is filled with feces. Radiographically, megacolon is present but a distal narrowed segment is not demonstrated. With complete filling of the colon, patients with psychogenic megacolon will evacuate well in contrast with Hirschsprung's disease where poor evacuation is a frequent finding.

Summary

1. Hirschsprung's disease is an unusual, but not rare, cause of obstruction and constipation in childhood. In its more severe forms, the disease may be fatal due to unremitting obstruction or colitis.

2. Clinically Hirschsprung's disease is characterized by constipation beginning at birth. There is no history of fecal soiling. Abdominal distension and an empty rectum are pertinent physical findings.

3. Radiographically the disease is recognized by the narrowed distal segment and by delayed emptying of the colon.

4. Hirschsprung's disease must be differentiated from the meconium plug syndrome in the newborn and psychogenic megacolon in the older child.

5. Rectal biopsy is the definitive diagnostic procedure and should be performed if any suspicion of the disease exist.

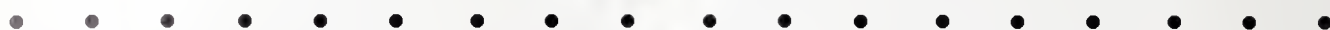
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ELECTROCARDIOGRAM



OF THE MONTH



AGE: 45 SEX: M BUILD: Stocky BLOOD PRESSURE: 135/78/78

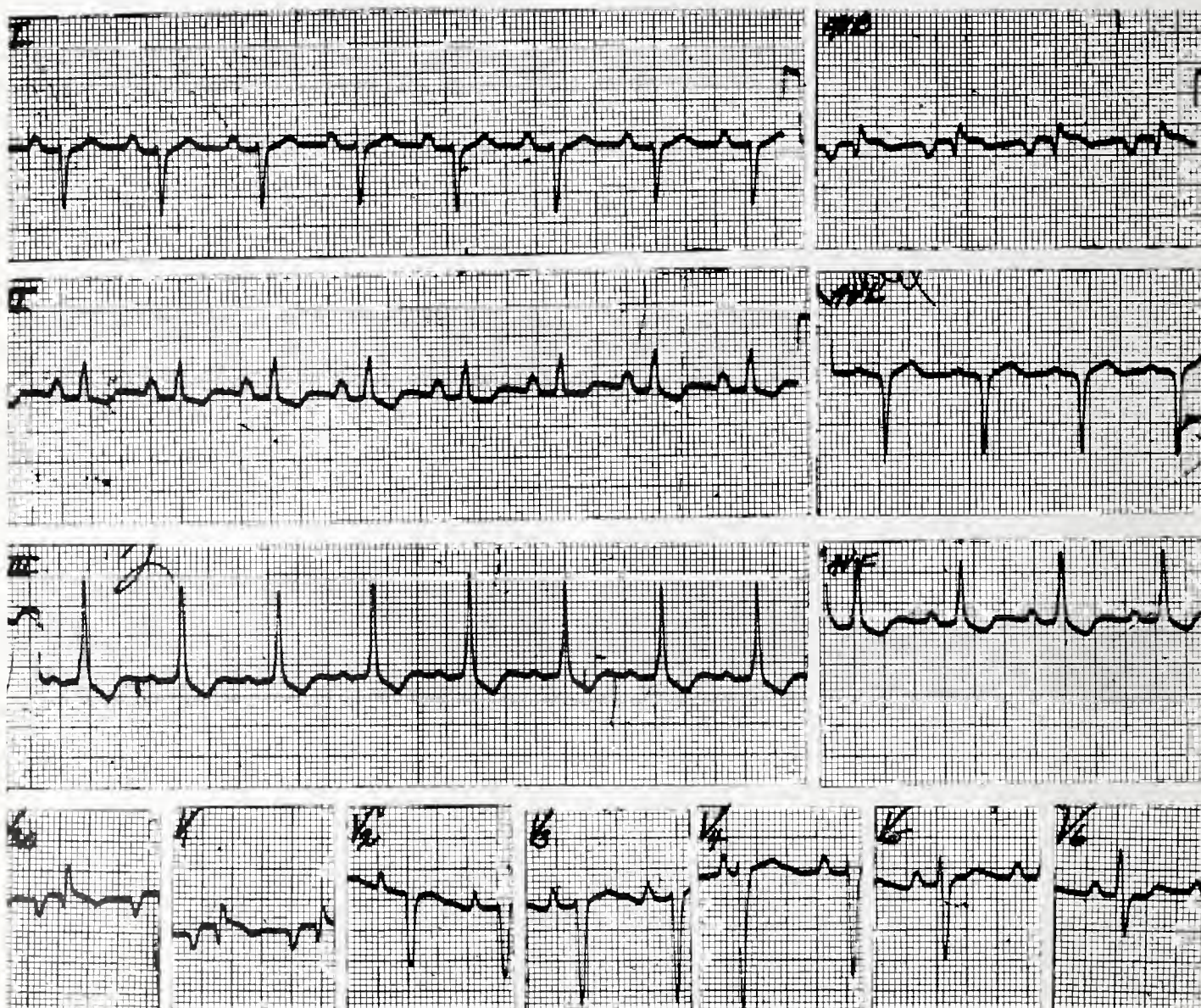
CARDIAC DIAGNOSIS: Cor Pulmonale

OTHER DIAGNOSES: Emphysema, pneumonia, asthma

MEDICATION: None

HISTORY: Cyanotic 10-15 years, lung disease

ANSWER ON PAGE 83

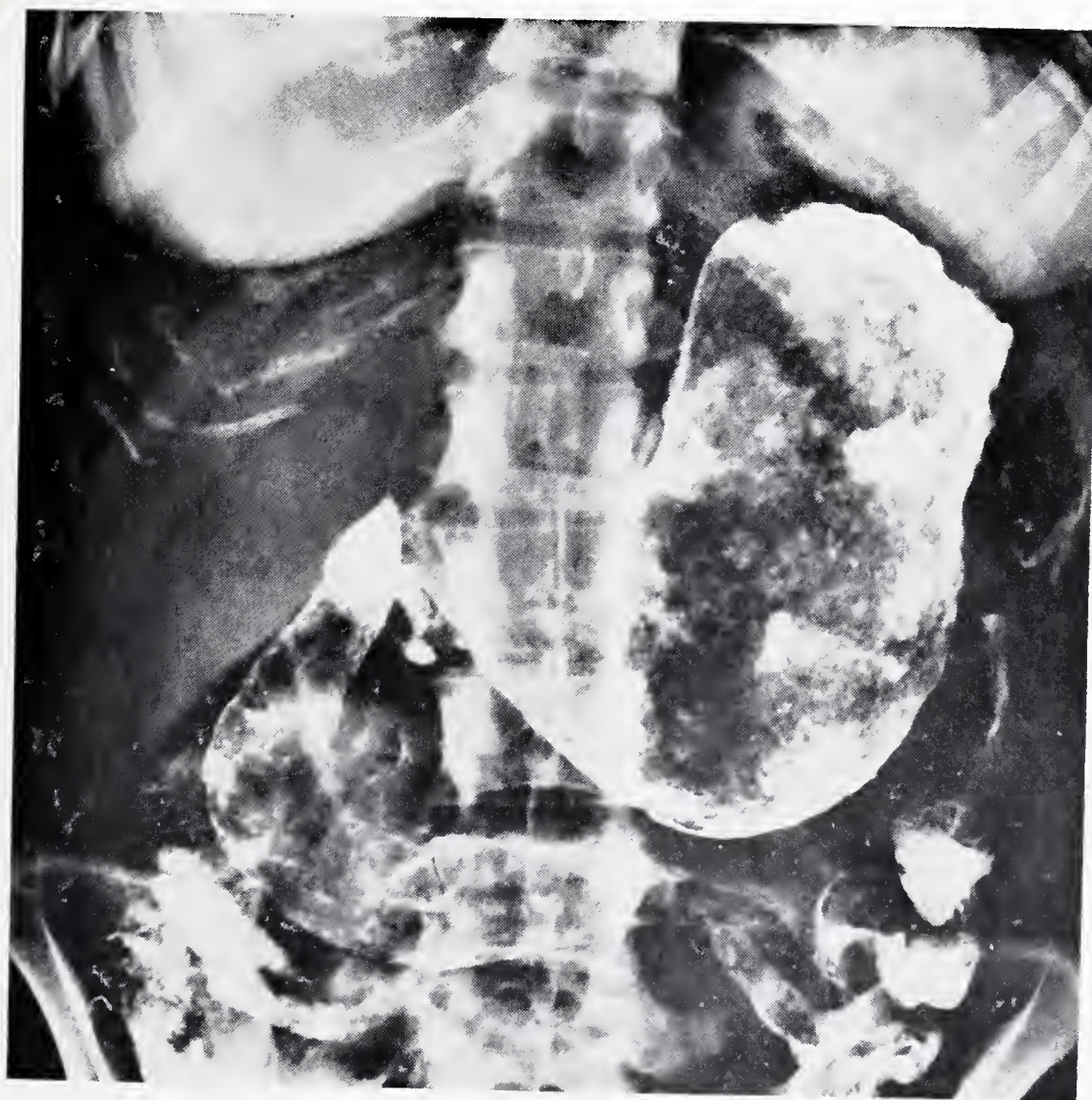


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 83



No. 02-42-30

29 year old female

HISTORY: The patient was mentally defective. She was one month post partum when first seen. She complained of weight loss and vague epigastric discomfort. Examination revealed a firm epigastric mass.



PUBLIC HEALTH AT A GLANCE

The Armed Forces Medical Rejectee Program

Bryant S. Swindoll, M.D.

Director, Division of Chronic Disease Control
Arkansas State Board of Health

THE CONGRESS of the United States appropriated monies to the various States early this year for initiation of this program at the insistence of President Johnson. Governor Faubus was directed to choose an agency to administer the program in Arkansas. He chose the State Health Department to do this job.

Dr. Edgar J. Easley, Director, Bureau of Local Health Services, Arkansas State Board of Health, discussed the program in detail at a meeting of the Council of the Arkansas State Medical Society on March 27, 1965. A request by Dr. Easley to initiate the program at an early date was approved by the Council at this meeting.

The purposes of the program are:

1. To screen and evaluate Armed Forces Examining Station medical records of men rejected for military service.
2. To counsel these men concerning their needs for medical care and vocational rehabilitation needs.
3. To refer them to their local community health and rehabilitation resources for appropriate services.
4. To provide follow-up action to determine if the rejectee actually sought the care or services that were recommended for his benefit.

As indicated above, the Arkansas State Health Department will administer and coordinate the program at State level. The program director will be a physician who will work closely with

medical societies and individual physicians in an effort to get the rejectees under medical care if they are not already receiving care.

At Armed Forces Examining Station level, a medically oriented counselor will talk to each rejectee about his problem and inform him as to the necessity of seeking care for his condition. If the rejectee is already under care, the counselor will only indicate to him the necessity of staying under such care until his physician discharges him. If he is not under care, the counselor will try to determine who his family doctor is and send a copy of the diagnosis made by the medical officer to this doctor. The counselor will advise the rejectee to report to his doctor as early as possible. Needless to say, all medical records will be kept confidential. The rejectee will have to sign a statement giving the counselor permission to see his record *before* he can be counseled. Otherwise, it will be assumed that he does not want help with his problem.

At the local level, public health nurses will do follow-ups on the rejectee and urge him to seek care from his own physician if it is a medical problem. If it is a non-medical problem, she will refer the rejectee to the proper resource which is prepared to take care of his needs. After the original contact, the rejectee will be contacted again at one- and six-month intervals to determine if he has sought the care or services recommended. If he has not, all reasonable efforts will be made to get him to seek help.

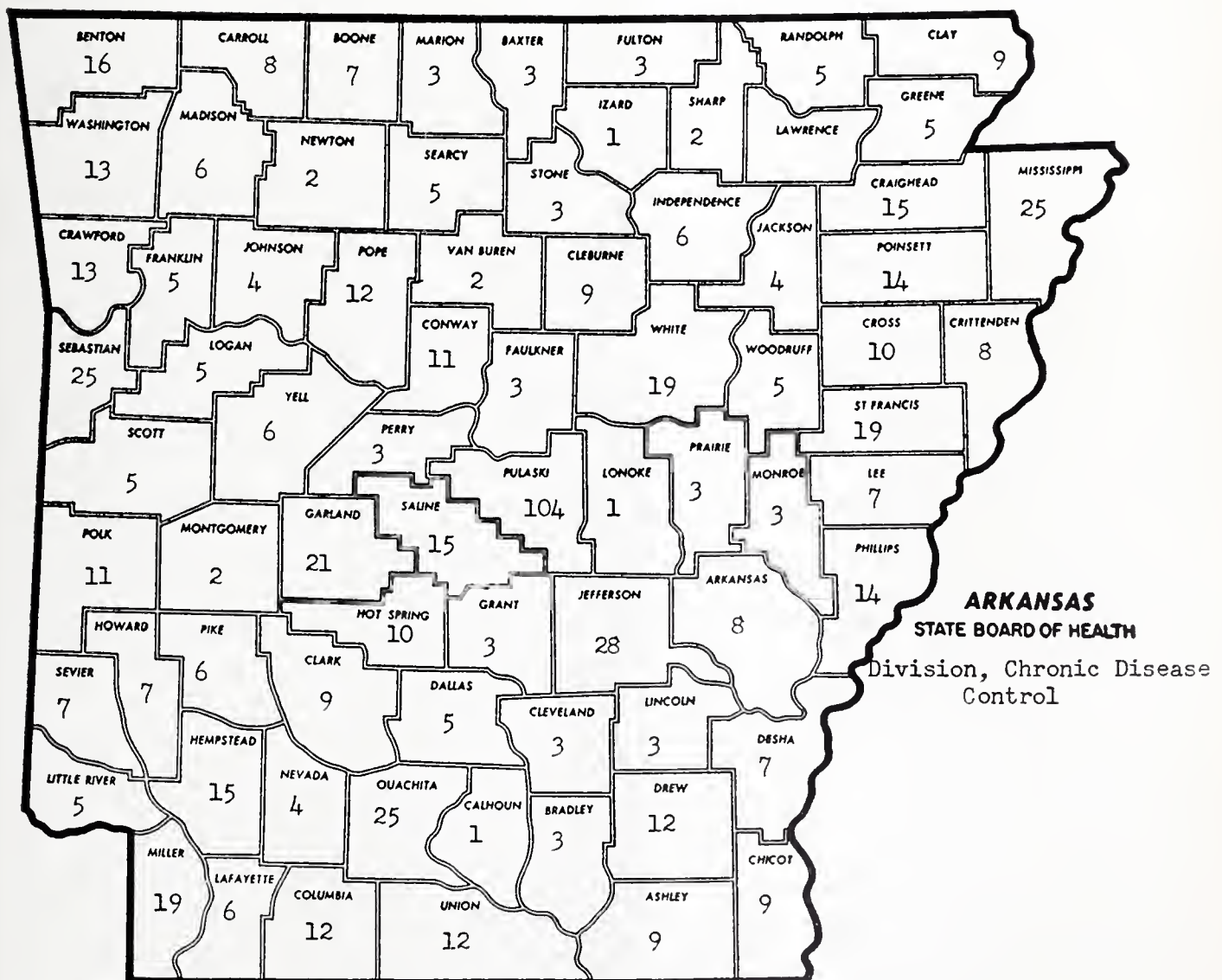
FEATURES

Public health nurses in your areas will necessarily have to call on you, either by telephone, mail, or in person, concerning these rejectees. They will take as little of your time as possible and it is hoped that you will cooperate with them fully in an effort to help these young men become useful and worthwhile citizens of their communi-

ties.

We feel that this is potentially a good program that will help to keep many of these rejectees off welfare rolls or out of an institution of some sort. The Health Department must have your advice, help, and cooperation if this is to be a rewarding undertaking.

Estimated Distribution by Counties of Medical Rejectees That Will Require Counseling During 1965





EDITORIAL

RESEARCH IN PULMONARY DISEASE

Alfred Kahn, Jr., M.D.

Several recent clinical research studies on pulmonary disease have offered an insight into problems of great interest to the practitioner.

Laurenzi, Berman, First and Kass (The Journal of Clinical Investigation Volume 43, page 759, April, 1964) have investigated techniques of experimentally infecting lungs with a quantitatively certain number of bacteria; the rate of removal can then be computed. Obviously, the lungs must have a great capacity for removal of bacteria considering their constant exposure; it is of interest in this regard that cultures of bronchial secretions, except in the presence of frank disease, are almost invariably sterile. The authors devised an apparatus for experimentally exposing mice to an aerosol mixture of staphylococcus aureus. Using this apparatus a stream of air containing the bacteria was blown over the experimental animal in a closed exposure chamber; the length of the exposure and the size of the inoculum could be varied. The animal was sacrificed at the end of the experiment. The bacteria in the air and in the animal's lungs were quantitated. The authors found that the number of bacteria in the lungs immediately after exposure varied with and was dependent on the number of bacteria in the air. The rate of bacteria cleared in these experiments was as follows: At zero hours no bacteria were removed, at one hour 43% were removed, two hours 67%, three hours 82%, six hours 95%. The clearance referred to removal of bacteria or the rendering of bacteria non-viable.

Using the techniques described by Laurenzi, et al., Green and Kass studied factors influencing the clearance of bacteria by the lungs (The Journal of Clinical Investigation, Volume 43, page 769, April, 1964). This team studied the effects of alcohol, hypoxia and corticosteroids on decreased host resistance to infection. It was found

that mice given large doses of alcohol showed a decreased rate of clearance of bacteria introduced into the lungs by the aerosol method. Hypoxia also decreased the pulmonary clearance of bacteria, as did starvation and corticosteroids. In discussing the results of these experiments, Green and Kass point out that the amount of alcohol used here was sufficient to decrease ciliary action or inhibit leukocytic phagocytosis. In the case of starvation, the decreased clearance was related to the weight loss. Hypoxia, it was presumed, acted to alter the metabolism of cells which removed the bacteria, and thus slowed the pulmonary clearance rate; the target cell here may be the alveolar macrophage which seems to be sensitive to oxygen lack.

Niden (The Journal of Clinical Investigation, Volume 43, page 810, May, 1964) has investigated the acute effect of atelectasis on the pulmonary circulation. The experiments performed and reported were the changes in the pulmonary circulation of dogs made acutely atelectatic by endobronchial obstruction and "six innervated perfused dog lungs ventilated by a whole body negative pressure respirator. It was found that:

"Acute atelectasis produced a two- to four-fold increase in respiratory minute volume, a decrease in intrathoracic pressure, and an initial fall in pulmonary arterial pressure usually followed by a slight rise. The percentage of cardiac output shunted during acute atelectasis was greater than the percentage of lung tissue collapsed. In contrast, unilateral ventilation with 100% nitrogen or 92.5% nitrogen and 7.5% carbon dioxide reduced the amount of blood flow through the affected lung. Except for a variation in the time of response, there was no difference whether the lung was filled

with room air or 100% oxygen before acute collapse.

"Constant flow perfusions of innervated pulmonary lobes (negative intrathoracic pressure breathing) revealed a sudden fall in perfusion pressure with acute collapse of the perfused area in five of six preparations. Vagotomy and sympathectomy did not eliminate the response. Direct measurement of pulmonary venous outflow confirmed the increase in blood flow through the acutely collapsed lobe."

The increased venous blood in peripheral arterial blood is not in proportion to the amount of collapsed lung, Niden observes. These experi-

ments further suggest a decreased pulmonary vascular resistance as a cause. It was also noted that there was about the same amount of blood flowing through a partially collapsed lung as through a completely collapsed lung. Denervation did not seem to change the decreased vascular resistance in lungs collapsed by this technique. The decreased pulmonary vascular resistance in these acute experiments is in contrast to chronically atelectatic lungs where the vascular resistance is increased.

These experiments on the lung will lend to a better understanding of the diseased human lung.



ANSWER—What's Your Diagnosis?

DIAGNOSIS: Trichobezoar ("hair ball")

X-RAY FINDINGS: There is a mass entirely filling the lumen of the stomach and extending through the lumen of the duodenum. The barium surrounds the mass completely so that a layer of barium can be seen between the mass and the stomach wall. (On questioning the patient admitted chewing her hair during her recent pregnancy.)

ANSWER—Electrocardiogram of the Month

INTERPRETATION: Rate: 95 Rhythm: Sinus

PR: .20 QRS: .09 QT: .32

ABNORMAL. The right axis deviation, delayed intrinsicoid deflection in V3R, V1, and prominent S waves, indicate right ventricular hypertrophy.

COMMENT: This patient had definite right heart enlargement due to his long standing pulmonary disease.



THE MONTH IN WASHINGTON

Washington, D.C.—A Registry of Tissue Reactions to Drugs is being established here within the Armed Forces Institute of Pathology (AFIP) through the cooperation of the American Medical Association, the Pharmaceutical Manufacturers Association and the Food and Drug Administration.

The AFIP has the world's largest repository of pathological material for research and education, and the registry is expected to be a major addition to existing adverse drug reaction reporting programs.

"This unique cooperative effort for the benefit of the American public is the first between major drug manufacturing, drug prescribing and drug regulating bodies," said a joint statement issued by Dr. Jean Weston, Director of the AMA's Department of Drugs; Dr. Joseph Sadusk, FDA medical director, and Dr. Austin Smith, president of the PMA.

The purpose of the Registry will be to obtain autopsy or biopsy tissue specimens from suspected adverse drug reaction cases. These specimens will be thoroughly studied by all methods available to a full-time pathologist, including consultation with other authorities in pathology and toxicology. Results of the studies will be reported to local pathologists who furnished the study material, and monthly summary reports will be made to each of the three sponsoring organizations. Important information obtained will then be disseminated to the medical community. The pathological material will remain on file at the Registry for future reference and study.

The Tissue Registry will augment the existing drug reaction reporting programs maintained by the AMA and FDA. The FDA at present receives reports of suspected adverse drug reactions from about 500 cooperating federal and military hospitals, and from 110 civilian hospitals under contract.

The AMA receives such reports from physicians in private practice, a number of hospitals not

reporting to FDA, and other sources.

Information is exchanged by the FDA and AMA, catalogued by data-processing techniques, and filed by data-processing machines. The data are then available for use in identifying drugs possibly associated with adverse reactions, in assisting physicians to diagnose possible adverse drug reactions, and in scientific investigations.

Establishment of the Tissue Registry was originally proposed by the Drug Research Board of the National Academy of Sciences-National Research Council. Twenty-eight such Registries already exist as joint activities of the Armed Forces Institute of Pathology and sponsoring professional societies. Collectively, the Registries are known as the American Registry of Pathology.

The parent Armed Forces Institute of Pathology, which is more than 100 years old, serves as a central laboratory of pathology for the Department of Defense and has become a center of research, teaching and consultation not only for the military but for civilian groups. AFIP offices and laboratories are in an eight-story building at Walter Reed Army Medical Center.

The cost of the Tissue Registry is being borne equally by each of the three sponsors. In its first full calendar year of operation (1966), the cost of operation and administration is expected to be about \$100,000. The fund will be administered by the Universities Associated for Research and Education in Pathology, Inc.

In another development in this field, the U.S. delegation proposed at the World Health Organization Assembly in Geneva, Switzerland, that there be a worldwide warning system against drugs with adverse effects.

In commending the proposal, which was recommended by the HEW department, President Johnson said:

"The expansion of this into an international system would be of direct benefit to the American people since it would include the monitoring of adverse reactions throughout the world.

"This is one of the many instances in interna-

tional technological cooperation where everybody gains and no one loses."

* * *

Congress has approved legislation authorizing more than \$100 million to finance a three-year extension of a program of federal aid to community health services, including immunization programs against polio and measles.

The American Medical Association supported the provisions for immunization programs and most other features of the legislation.

Included in \$11 million a year earmarked for immunization is a new program to inoculate 20 million pre-school children against measles. Aid to states and local communities for immunization programs against polio, diphtheria, tetanus and pertussis also will continue.

Other features of the legislation are:

—\$3 million a year for a program of health services for domestic migrant workers and their families.

—\$50 million to continue for one more year a program of general federal aid to communities to enable them to establish and maintain adequate public health service.

—\$10 million to continue for one more year a program of federal grants designed to encourage the development of new or improved methods of providing health services outside the hospital.

The House Commerce Committee extended the last two features for only one year because they are both under review by the public health services with a view toward possible changes.

* * *

Wilbur J. Cohen, a longtime advocate of health care for the aged under social security, has been promoted to Under Secretary of Health, Education and Welfare.

Cohen, 51, has been Assistant HEW Secretary for legislation since 1961. The post made him the Administration's chief lobbyist for medicare. Playing mainly a behind-the-scenes role, Cohen long has worked for social security financing of health care for the aged.

At one time, he was director of the social security research and statistics division.

He succeeded Ivan A. Nestingen, who resigned, as HEW under secretary.

THE COSTS OF CONDUCTING SPONSORED RESEARCH

U.S. medical school expenditures for the performance of federally sponsored research totaled 206.7 million dollars in academic year 1962-63. This amount indicates a more than ninefold increase in the dollar volume of federal research activity since 1953.

Twenty-five years ago when the federal government began supporting small programs of research, grant recipients were quite willing to absorb a portion of the costs of conducting research programs, since they did not necessitate increased space or personnel costs. A theory prevalent at that time stressed that the benefits derived by a recipient institution more than offset the small amount of expense incurred. However, the amounts concerned are no longer small and research programs now incur expanded space and staff expenditures constituting an increasingly larger major diversion of institutional funds essential to the support of the regular operating programs of the institution.

A study made by the National Science Foundation in 1962 reported on indirect costs as a part of the direct cost of operating federally sponsored research programs at 93 large colleges and universities which in 1960 received federal grants in excess of \$250,000 each. The schools in this study, including all of the U.S. medical schools, perform 90% of the federally sponsored research in colleges and universities. Their indirect costs ranged from less than 18% to more than 50% of direct costs computed in accordance with the Bureau of the Budget Circular A-21. The weighted average indirect cost rate for the 93 schools was found to be 28.2%.

An estimate of the magnitude of indirect research costs borne by the medical schools may be obtained by examining National Institutes of Health grants which in 1963 accounted for 62% of the total federal expenditure for medical research.

On the assumption that the maximum allowable indirect cost reimbursement rate of 20% for NIH research grants was received by the medical schools, and that the average indirect cost is 28.2%, the medical schools are absorbing the 8.2% difference. Thus it appears that the medical schools in 1962-63 expended at least 15.6 million dollars in support of NIH research programs

alone, an amount equal to almost half of their reported annual income of 32.3 million dollars in tuition and fees.

Dr. C. Lewis Hyatt Gives Speech

Dr. C. Lewis Hyatt, Monticello, Arkansas, spoke to the Monticello Kiwanis Club in May on "Proposed Federal Legislation Affecting the Practice of Medicine."



Tennessee Valley Medical Assembly Meeting Scheduled

The 13th Annual Assembly of the Tennessee Valley Medical Assembly is scheduled to be held

at the Tivoli Theater, 709 Broad St., Chattanooga, Tennessee on Monday, September 27th, and Tuesday, September 28th, 1965. This program is acceptable for continuation study credit by the American Academy of General Practice.

An International Seminar in Orthopedics

The American Physicians Fellowship is sponsoring an orthopedic seminar, under the jurisdiction of the Israel Medical Association, to take place in Israel from August 4 to August 15, 1965. This seminar will be under the direction of Dr. Melvin J. Glimcher of Boston, Mass., Associate Professor of Medicine at Harvard Medical School and Director of Orthopedic Research Laboratories, Massachusetts General Hospital. Dr. Leroy S. Levine of New York City, Professor and Chairman of the Department of Orthopedic Surgery at the State University of New York, will assist Dr. Glimcher.



PERSONAL AND NEWS ITEMS

"Doctors Village" Planned

A complex of at least five medical office buildings called a "doctors' village" is to be constructed in North Little Rock. The physicians who have been planning the doctors' village are: Dr. Joe Stanley, Dr. Ernest Harper, Dr. Frank Ludwig, Dr. John McCracken, Dr. Charles Fielder, Dr. Frank Morgan, Dr. Frank Stroope and Dr. Bob Gosser.

Dr. Jones Addresses Meeting

Dr. Duane Jones, medical director of the Arkansas Tuberculosis Sanatorium at Booneville, spoke at the annual meeting of the Garland County Tuberculosis Association in April.

Dr. Campbell to Medical Center

The University of Arkansas Medical Center has announced the appointment of a thoracic and cardiovascular surgeon as chairman of the De-

partment of Surgery. Dr. Gilbert S. Campbell, former professor of surgery and chief of the Thoracic Surgery Section of the University of Oklahoma Medical Center, assumes the professorial post July 1, 1965.

Dr. Crow Moves to Prescott

Dr. H. Blake Crow has opened his office in Prescott for the practice of medicine. He is a native of Prescott and comes to Prescott from Magnolia where he has been practicing since 1954.

Surgical Congress Held

The 17th annual meeting of the Southwestern Surgical Congress was held in Hot Springs May 9-13. Some 200 surgeons and their wives from Arkansas, Arizona, Colorado, Kansas, Missouri, Nebraska, Nevada, New Mexico, Oklahoma, Texas, Utah and Wyoming attended the meeting. Dr. Frank Burton and Dr. H. King Wade, Jr. of

Hot Springs were on the arrangements committee. Dr. Jean Gladden of Harrison is Arkansas Councilor to the Congress.

"Dr. Buffington Week" Proclaimed

Dr. T. E. Buffington of Benton was honored on his 86th birthday by the citizens of Benton. The week of May 2 to May 8, 1965, was set aside as "Dr. Turner Ellis Buffington Week" by the mayor of Benton. Dr. Buffington has practiced medicine for 62 years. He was born and grew up in Saline County and graduated from Benton High School. He studied medicine in the offices of Dr. J. W. Walton and Dr. D. N. Fisher. He passed his state medical board examination in 1903. He opened his first office in 1903 at Bauxite as company doctor for the Perry Smith Bauxite Mining Company. In 1906 he moved to Lonsdale and served as doctor there for 20 years. In 1926 he moved back to Benton where he has practiced ever since. Dr. Buffington has delivered about 6,000 babies. He has been interested in real estate and has built 240 homes during the past 25 years. He is an active member of the First Baptist Church in Benton and has also been active in the Saline County Medical Society. He has one son, Dr. Carroll B. Buffington, orthopedic surgeon at Wheeling, West Virginia.

New Helena Nursing Home

A 50-bed nursing home will be constructed in Helena by a group of local doctors, it was announced by Dr. A. A. Berger, one of the doctors. It will be constructed on the new Helena-West Helena road.

Dr. Roberts Opens Clinic

Dr. Joe Roberts has re-opened the Hensley Clinic in Charleston. Dr. Roberts is a graduate of the University of Arkansas School of Medicine and he completed a year as resident surgeon at Hillcrest Hospital in Tulsa, Oklahoma.

Dean Shorey Announces Appointments

Dr. Winston K. Shorey, Dean of the University of Arkansas School of Medicine, has announced that Dr. Roger B. Bost has been appointed associate professor of pediatrics and director of pediatric ambulatory services, which includes the outpatient, emergency room, poison control, birth defects and cystic fibrosis programs. Dr. Bost is formerly from Fort Smith. Dr. Shorey also announced that Dr. William T. Kniker has been

assigned as assistant professor within the pediatrics department and will take on additional responsibilities as pediatric director of the Clinical Research Center.

Dr. Blakely Honored

Dr. R. M. Blakely of Little Rock was honored with a surprise party on April 30 on the occasion of his retirement after 54 years of practicing medicine. He was graduated from Tulane Medical School in 1911 and he is a veteran of World War I. He has practiced for the past 45 years in the same office.

Dr. Springer Addresses Optimists

Dr. M. Richard Springer, Jr., discussed the treatment of diseases by radiology before the Hot Springs Optimist Club in May. He explained the duties and qualifications for a radiologist and emphasized the importance of nuclear medication with every phase of medical science.

Dr. Hudson Speaks to Rotarians

Dr. William A. Hudson, founder of the American Board of Chest Surgery, was guest speaker at the Pocahontas Rotary Club meeting in May. He is a native of Jasper and was the first doctor in this country to go into the specialty of chest surgery. His subject at the Rotary meeting was "Evolution of Chest Surgery".

Dr. Bradburn Heads Lions

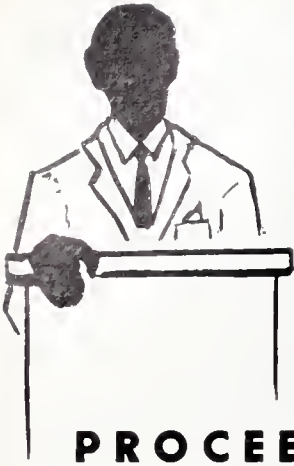
Dr. C. B. Bradburn of Little Rock took office in May as president of Pulaski Heights Lions Club.

Dr. Shuffield Receives Lifetime License

Dr. Joe Shuffield of Little Rock has been presented the No. 1 Lifetime Hunting and Fishing License issued by the Arkansas Game and Fish Commission. Dr. Shuffield served as a commissioner from 1937-41 and 1951-58.

Dr. Ferguson Is Panelist

Dr. T. Murray Ferguson of West Memphis was one of the panelists in an afternoon session of the Arkansas Academy of General Practice held in May in West Memphis.



PROCEEDINGS OF SOCIETIES

MILLER COUNTY

Dr. David Carroll, immediate past president of the American College of Radiology, was guest speaker at the Bowie-Miller County Medical Society in April. Dr. Carroll, professor of Radiology at the University of Tennessee, spoke on the change in character of institutional medical practices.

The Bowie-Miller County Medical Society has completed two health forums in Texarkana. The first forum theme was prevention of infectious diseases by immunization. The second forum studied the signs and symptoms of cancer in women. The forums were open to the public and included a question and answer session conducted by local physicians.



OBITUARY

Dr. E. H. Abington

Dr. Abington of Beebe died at his home on April 22, 1965, at the age of 92. He practiced medicine more than 69 years before retiring in 1962. He organized the Citizens Bank of Beebe in 1917 and served as its president until 1957, when he became chairman of the board. He has served on the state Penitentiary Commission and he was a member of the board of trustees of the Beebe Junior Agricultural College before it became a branch of Arkansas State College. He assisted in organization of the Beebe Fruit and Truck Growers Association. Dr. Abington's autobiography, "Back Roads and Bicarbonate" was published several years ago. He was a 32nd degree Mason, a Shriner, a veteran of the Spanish-

American War and a Methodist. He is survived by a son, a daughter, two grandchildren and two great-grandchildren.

Dr. Matthew M. Blakely

Dr. Matthew M. Blakely, aged 80, died at his home in Benton on May 7, 1965. He was born August 23, 1884 in Hot Spring County, graduated from Arkansas Medical School and practiced in Sheridan and Benton. He was instrumental in opening the first hospital in Sheridan and was a member of the First Baptist Church. He is survived by four brothers and one sister.

Dr. William I. Porter

Dr. William Porter died April 12, 1965, at the age of 46, in Little Rock. He was a native of Marvell, Arkansas, and a graduate of the University of Arkansas Medical School. He interned at Baptist Memorial Hospital in Memphis and served as a captain in the Army Medical Corps from 1946-48. He served his general surgery residency at St. Vincent's Infirmary in Little Rock

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and his neurological surgery residency at Arkansas Baptist Hospital. At the time of his death he was a member of the staff of Arkansas Baptist Hospital, St. Vincent's Infirmary and the Arkansas Children's Hospital. He was also neurological consultant at the Little Rock and North Little Rock Veterans Administration Hospitals. He was a fellow in the American College of Surgeons, a member of the Pulaski County Medical Society, the Arkansas Medical Society, the Southern Medical Association, the American Medical Association, the Southern Neurological Society, the Harvey Cushing Society and the Congress of Neurological Surgeons; he was a member of the Second Presbyterian Church of Little Rock, the Cathedral Masonic Lodge 757 and the Arkansas Consistory. He is survived by his mother, his widow, one son and three daughters.



BOOK REVIEWS

Leopold's PRINCIPLES AND METHODS OF PHYSICAL DIAGNOSIS, Third Edition, by Henry U. Hopkins, M.D., Professor of Clinical Medicine, The School of Medicine, University of Pennsylvania, pp. 503, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1965.

Perhaps one of the most important phases of the training of a medical student is his course in physical diagnosis. Leopold's *PRINCIPLES AND METHODS OF PHYSICAL DIAGNOSIS* is a satisfactory teaching text and fills the requirements of such a book. Perhaps the reviewer's only reservation about this text is the relatively large number of similar books in this field. In other words, does this text fulfill a need? The book is well illustrated and well written. It is recommended as a satisfactory textbook on physical diagnosis. AK

FUNDAMENTALS OF ORTHOPAEDICS, by John J. Gartland, A.B., M.D., Assistant Professor of Orthopaedic Surgery, Jefferson Medical College, Philadelphia, Pennsylvania, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1965.

This text of 338 pages is aimed at the medical student. There is no new information in the book, and as the author points out, its virtue is really its simplicity and brevity. Within this framework, the book succeeds quite satisfactorily. It has a number of illustrations. It has a glossary of terms. The writing style is not difficult. This book is a satisfactory introduction to orthopedics.

Liver Necrosis Following Anesthesia

R. Herber and N. W. Specht (1620 New Jersey St, Los Angeles) *Arch Intern Med* 115:266 (March) 1965

Postoperative liver dysfunction for a five-year period is reviewed. Halothane anesthesia was considered the most important single etiological factor. Of 13 patients in the study, halothane was not used in only one. Postoperative jaundice increased as this agent was more commonly used, occurring at the rate of approximately one case per 800 halothane anesthetics. True drug sensitivity seems unlikely since not all of the patients on subsequent anesthetics with the same agent as the status of the liver before operation are also important.



Lakeside Laboratories—makers of Metahydrin, Metatensin, Geriliquid, Imferon, Norpramin, Dactilase, Cantil, Piptal PHB and Pediatric Piptal, and other pharmaceutical products—demonstrate their interest and confidence in Arkansas medicine by an unusual advertising commitment to the *Journal of the Arkansas Medical Society* beginning with this issue. The company has contracted to take nine pages of advertising every month from July through December of this year—a total of 54 pages.

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This display of faith in the buying power and perspicacity of Arkansas physicians may move some of the readers of this *Journal* to write Lakeside Laboratories expressing their appreciation of the company's interest in Arkansas. Any such letters should be addressed to:

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Vol. 62 No. 3

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(1) Frykman, H.M.: *Minn. Med.*, Vol. 38, Jan. 1955. (2) Poth, E.J.: *The J.A.M.A.*, Vol. 163, No. 15, April 13, 1957. (3) McGivney, J.: *Texas State Jour. of Med.*, Vol. 51, No. 1, Jan. 1955. (4) Stern, F. H.: *Jour. of The Amer. Ger. Soc.*, Vol. 11, No. 3, Mar. 1963. (5) Weekes, D. J.: *N.Y. State Jour. of Med.*, Vol. 58, No. 16, Aug. 1958. (6) Abbott, P.L.: *Jour. of Oral Surg., Anes. & Hosp. Dental Serv.*, Vol. 19, July 1961. (7) Weekes, D. J.: *E.E.N.T. Digest*, Vol. 25, No. 12, Dec. 1963.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579-P to be sent to Arkansas Medical Society, 218 Kelley Building, Fort Smith, Arkansas 72902. Published monthly under direction of the Council, Arkansas Medical Society, Vol. 62, No. 3. Subscriptions \$3.00 a year. Single copies 50 cents. Entered as a second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

Radiation Demands Respect

J. T. Herron, M.D.

State Health Officer

The discovery of X-ray by Professor Roentgen in 1896 opened the door to its use in clinical medicine. Two decades later, the specialty of Roentgenology was common and to this day, the use and versatility of this tool is well known to all practitioners of the healing arts.

The misuse or improper use has caused much needless suffering in those who neglected the fundamental principles of the specialty. These principles deserve continued emphasis. They include:

1. Limit the part radiated to that of clinical interest.
2. Diagnostic radiation is useless unless the image is recorded on film or screen.
3. The machine should be in good working order and be appropriate for the task at hand.
4. The physician should be mentally and physically prepared to derive the utmost information from the image produced.
5. Suitable or appropriate developing procedures and equipment must be used.

It is well known that radiation in large quantities causes tissue damage or destruction, but it is not so well understood that radiation in low doses or in small amounts may be capable of tissue harm. Statistical information is appearing that seems to indicate that even diagnostic radia-

tion may result in an increased incidence of disease or anomalies.

On the other hand, the use of radiation is a basic tool in clinical medicine and few of us would be able to practice without it—but, as in the case of drug therapy, the potential benefit must exceed the potential risk as indeed it does in most instances.

Your State Board of Health feels that every X-ray machine in this State should be in good operating condition; that the user should operate the machine in a proper manner; and that only those areas of clinical interest should be radiated. To that end, the Division of Radiological Health is now surveying all the diagnostic machines in the State and offering corrective advice where indicated.

Currently, a strenuous program of education is under way to acquaint the medical practitioners with fundamental knowledge of radiation as well as a full description of those programs being carried out by the Arkansas State Board of Health in cooperation with the U.S. Public Health Service. A four-hour seminar is being held in each of the councilor districts of the State Medical Society. These seminars began October 14 at El Dorado and will terminate January 7, 1965, at Little Rock.



MAN AND HIS IDEAS

by

Dale C. Cameron, M.D.*

Ideas and concepts are important because the social institutions and programs developed by mankind for the management of social and individual problems are based on underlying concepts, whether explicitly expressed or not. It is mankind's current fundamental concepts as they relate to man in general and to the mentally ill in particular that determine how the mentally ill are treated, and what kind of programs are developed for them. Fundamental concepts, of course, change through time.

What are the current important ideas, and who are the important people in relation to the problems of the mentally ill? Since man is the originator, perpetuator, and executioner of ideas, it is not surprising that he has many ideas about himself. One of the most fundamental is that *man is important*—important as a person and as a species. From this flows the notion that he, as a person, is entitled to certain rights and respect within the bounds prescribed by the society of which he is a part. Of course, various societies and cultures place different weights on the relative value of a person and of the society to which he belongs. In a democratic society, it follows, on philosophical grounds, that this social form can survive only so long as certain personal human rights and dignity are recognized and honored. An erosion of personal rights is often an erosion of democracy itself. How men, individually and through their social institutions, regard the rights and dignity of other men who have become mentally ill, depends not only on the fundamental idea and corollaries so far discussed, but also on their concepts of causes of mental illnesses, the treatability of the mentally ill, and many other factors. Our current concepts are that mentally ill persons are treatable because their difficulty is based on naturalistic causes of a medical, psychological, and social nature capable of being, if not yet, fully understood. These basic concepts lead to certain corollaries.

- (a) The diagnosis and treatment of mentally ill persons are medical problems,

but there are social, psychological, and often legal issues involved.

- (b) Every mentally ill person must have easy and prompt *access* to programs and services *appropriate to his particular needs*. (All of you can doubtless think of various laws and agency operating policies that violate this concept. It is quite fundamental to the comprehensive, community-centered mental health program goal now being fostered.)
- (c) It should be presumed that a mentally ill person wants treatment in an appropriate community program, including a mental hospital, unless he actively objects. He need not, therefore, *necessarily* be presumed sufficiently competent to affirm actively his desire for treatment as a condition for allowing him to enter in a needed treatment program. (If this concept were accepted, we would admit nonobjecting, mentally ill patients to public mental hospitals on the same basis as other ill persons are now admitted to general hospitals.)
- (d) Those persons dealing with the mentally ill, including friends and relatives, the professional and nonprofessional personnel who provide service to them in and out of hospitals, and attorneys and courts involved in any judicial proceeding, are to be presumed *honestly* concerned with the best interest of the patient. (While laws must protect each mentally ill and other person in a society, it is my conviction that ways can and must be found to protect the mentally ill from occasional dishonest persons without establishing procedures that seem to presume that everyone is lacking in honest concern for the patient.)
- (e) The human *dignity* and *rights* of mentally ill persons must be protected and are as important as any presumed need to protect society. These rights include protection, not only against wrongful

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deprivation of liberty, but also against invasion of privacy, and exposure to traumatic situations inimical to the treatment of the mentally ill. (This is a corollary of the fundamental concepts that man is important, and that mental illnesses may be understood on a naturalistic basis. So long as criminal-like commitment proceedings and particularly even optional jury trials are continued, this concept will not have been fully accepted.)

We have spoken of a few fundamental concepts and their corollaries. Now let us turn to a few important people: the mentally ill patient; the professional and nonprofessional personnel who serve him in various treatment settings; and the members of the public, only through whose enlightened understanding can modern preventive and treatment services be developed and supported. Of these, the patient or potential future patient is the more important. Without him, there would be no programs for the treatment of the mentally ill nor the promotion of mental health. What I have just said may sound trite, but I honestly think that many persons who believe themselves to be genuinely concerned with the improvement of services for the mentally ill tend to forget the patient. They often seem to arrange services primarily for their own convenience or for the aggrandizement of their organization or professional discipline, rather than the benefit of the patient, the person for whom the service is provided. It is not uncommon to see people in different organizations contesting between themselves about who shall provide certain services to the mentally ill. They usually verbally agree on what is best for the patient, yet by word and deed indicate that their status, organization, or "service" will be threatened if another provides the needed service. Professional people in the mental health disciplines are not immune to this type of problem. Have you ever thought that you heard the status needs of a particular profession or person taking precedence over the needs of a patient during the course of discussions on the provision of services? This seems to be a particular problem in the United States as compared with some European countries. Perhaps it is a reflection of our dedication to specialization with the attendant problems of professional identity. It is my thesis, at this point, that many organizational and pro-

cedural problems might be easier of solution than they now appear to be if those concerned with their solution were really dedicated to the concept that the patient is the reason for their professional or organizational being.

Mental health programs are influenced not only by the current underlying ideas of man and the degree to which they are disseminated in the population, but also by the resources available for their implementation—scientific, clinical, and administrative knowledge, trained personnel, and material wealth.

Administrative and Clinical Principles

Let us turn now to the consideration of some administrative and clinical principles that should be honored in the organization of a mental hospital and other facets of a comprehensive mental health program.

1. *There should be continuity of service for each patient.* One of the most important tools in conducting therapy with many psychiatric patients is the development of a meaningful human relation between the therapist(s) and patient. It is self-evident that the maintenance of such a relation is made difficult if there is a continual change of therapist(s) during the treatment. Further, many patients have particular difficulty in establishing human therapeutic relations because of their illnesses. To call upon them to shift this relation from one therapist or group of therapists to another several times during the course of treatment complicates rather than facilitates the treatment process. Most of our large hospitals still violate this principle within their own program, particularly if they are of such size as to permit segregation of patients according to behavioral classifications. Even if continuity of patient-therapist(s) relations is achieved in the hospital, it is difficult to implement throughout the entire mental health program because of the great number of private, general, and specialist practitioners and numerous community agencies and services. Much can and is being done to foster continuity, and at least we can take account of providing a good transition phase when it is essential that a particular patient be transferred to another group of thera-

pists. My point is that there are rarely valid reasons to transfer a patient from one therapist or group of therapists to another within the hospital setting.

2. *Responsibility must be clearly defined.* As long as one group of therapists has the opportunity readily to shift patients to other therapists (that is "pass the buck"), responsibility for treatment really has not been clearly defined. This is important clinically, since therapists will often deal differently with a patient whom they can "pass off" to someone else than they would if they knew they would have to cope with that particular patient's behavior and did not have available the necessity or luxury of "transfer off service." As long as a staff member can come to the physician in charge and say, "Doctor, patient X was untidy this morning and since we don't take care of untidy patients on this ward, he ought to be transferred," and the physician agrees and does transfer him; it is clear that responsibility isn't well defined.
3. *Authority must be given commensurate with the responsibility assigned.* This is an old administrative principle, but very often violated in mental health programs. Are physicians and other professional people working directly with patients, particularly in public programs, really given authority to make important decisions about changes in treatment, or must this be ratified by "higher authority"? While there is certainly a place for over-all medical policy and "higher authority," it is my impression that if there is a general error in this situation today, it is to give too little, rather than enough or too much authority to persons responsible for treatment.
4. *Patients and employees tend to respond to the environment and expectations of the place in which they live and work.* One seldom sees "no spitting" signs in well-kept and attractive public and private buildings. There, they are not needed. They are to be found in dirty streets, dirty subways, and run-down buildings. There, they do little good.

Many of our large public hospitals, and

private ones for that matter, distribute their patients on a behavioral classification basis. This reminds me of a giant still into which one puts the patients, bubbles gently, and takes off a fraction that turns out to be kindly old ladies who seldom soil themselves and who are little trouble to themselves or anyone else. They are placed in one particular ward or building. After further bubbling another fraction is taken off and this turns out to be regressed, untidy, sometimes assaultive men in the age range 20-60 with a period of hospitalization of 5 to 25 years. They are placed in another ward or building. I needn't elaborate. You all know how it works. The trouble with this system is that if you place a patient in a "disturbed ward" either officially or unofficially designated as such; where the modal behavior of the patients on that ward is disturbed; where disturbed behavior is expected by the employees—otherwise why would the doctor have sent the patient there—; it is not surprising that the patient you have just introduced to that environment may behave in a disturbed fashion. If a patient is not disturbed while living on a "disturbed ward," he is a deviant in that culture. If, on the other hand, you place him in a ward where disturbed behavior is not the modal behavior, where it is not expected by the employees and they will thus try to take steps to minimize or prevent such behavior, and where it is poorly tolerated by the other patients; most patients will accommodate you and behave in a much less disturbed fashion. The same can be said for "untidy," "regressed," and other types of wards. That this is so has been demonstrated in various hospitals and is no longer subject to much question. Yet, we continue to organize many of our large hospitals on this basis. It is this type of behavioral classification and organization that also leads to the discontinuity of service for a particular patient as he changes from one behavioral classification to another.

Perhaps much of this type of behavioral classification was adopted by our larg-

er hospitals as a convenience for employees who were present in woefully insufficient numbers, but in some instances it also seems to call out rather loudly some underlying assumptions about lack of treatability.

5. *Manpower should be utilized at its highest level of competence.* Are your services planned so that nurses must do janitorial work and the physicians must be secretaries? If so, a program of constructive change might have a high priority, but a continuation of existing staffing and organizational patterns would, in my opinion, be rather low on the priority list.
6. *Progressive personnel should be employed.* This refers to the importance of recruiting persons, both professional and non-professional, who are devoted to "seeking a way to get a job done" in contrast to those who characteristically point out why "it cannot be done." While the latter type of person is useful in helping to keep out of legal, administrative, and fiscal difficulties, about one per organization is all you really need and can toler-

ate if you are to get on with program development.

7. *Commonly accepted operating assumption should be queried.* Of course, we must operate on our best current assumptions when precise knowledge is lacking. But it is important that we not be deluded into accepting assumptions as facts simply because we have used them for some time. We often tend to perpetuate certain organizational forms and procedures simply because they are time-honored, not realizing that new knowledge has been acquired or new operating assumptions have been made that call for their review. We certainly need to learn to do things better than we have in the past.

I only hope that by our words to all, and particularly by our deeds of service to the mentally ill, we may demonstrate that we are among those who believe in the importance of man; that we have respect for not only our rights and dignity but those of the mentally ill; that we believe the mentally ill are treatable; and that we are willing to support, with our time and treasure, those programs based on these ideas.



Eradication of Bacteriuria in Pregnancy by a Short Course of Chemotherapy

J. D. Williams et al (W. Brumfitt, Edgware General Hosp, Edgware, Middlesex, England), *Lancet* 1:831-834 (April 17) 1965

In 127 women found to have bacteriuria at their first visit to the antenatal clinic, 88% of the infecting organisms were sensitive to levels of sulfonamide readily attainable in the blood and urine with conventional dosage. An eight-day course of sulfonamide was given to all 127 subjects, and clinical and bacteriological cure was obtained in 97, one week after the end of treatment. Most of

these women remained free from infection for the remainder of pregnancy. Nearly half of the failures were due to resistant strains either present before or developing during treatment. Thirty patients who did not respond to sulfonamide had a seven-day course of ampicillin or tetracycline, which cleared 20 of the infections. When this second course of treatment failed, bacteriuria persisted despite several courses. Subsequent investigation of these patients with persistent infection showed that seven of 12 had renal abnormalities. Short courses of treatment are effective in bacteriuria of pregnancy, and less likely than protracted treatment to harm mother or fetus.

Some Aspects of the Inactivation of Proteins By Radiation*

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INTRODUCTION

Proteins have a very intricate structure and consequently a complicated radiation chemical response. According to K. Linderström-Lang, the structural features of a protein molecule may be divided into four classes: 1. The primary structure includes the amino acid sequence in the peptide chain; 2. the secondary structure covers the periodical conformation of the chain, the α -helix according to Pauling (1) is an example; 3. the tertiary structure covers the spatial orientation of the peptide chain, however, there is no clear distinction between secondary and tertiary structure. The tertiary structure for myoglobin according to Kendrew and hemoglobin according to Perutz (2, 3) are typical examples; 4. the quaternary structure includes the protein composition of the subunits, the tobacco mosaic virus consisting of many subunits is one example.

The irradiation of a protein with a dose sufficient to cause 50% inactivation results in no detectable changes in the primary structure. Alexander and coworkers (4) have shown that bovine serum must be irradiated with a dose greater than 10 Mrads to show measurable changes in the amino acid composition of the protein molecule. In dilute aqueous solution, however, changes may be detected with much smaller irradiation doses. Experiments of this nature, however, must be designed so that the concentration of the irradiated system is comparable to the protein in a biological organism, the protein concentration in mammals is usually 10% on the average. There are many technical problems involved in using protein concentrations this large, for many proteins are not soluble in high concentrations. It therefore seemed useful to use protein solutions which contain from 0.5 to 1% protein. It is difficult, however, to find a relationship between the inactivation of a protein by x-rays and the change of the primary structure of the protein. Also the

G-values for the destruction of the various amino acids of the protein molecule are quite similar. In all cases where protein inactivation was observed, we failed to find a pronounced change in the primary structure, however, changes in the secondary and tertiary structures are expected.

The typical chemical bond stabilizing the primary structure, the covalent bond, has a dissociation energy between 55 and 75 kcal per mole. The secondary structure is stabilized by hydrogen bridges having energies on the order of 5 kcal per mole or 0.2 ev per molecule. In such a system many hydrogen bonds operate together in a so-called cooperating system of hydrogen bonds. The dissociation energy of such a system is approximately 25 kcal per mole. Systems of cooperating hydrophobic interactions contribute with about 25 kcal per mole in a similar way to the stability of the tertiary protein structure although the nature of hydrophobic bonds is entirely different from the nature of hydrogen bonds. It is interesting also to note that the activation energy for thermal denaturation of proteins is also about 25 kcal per mole. In many proteins the disulfide bonds play an important role, but these are not present in all proteins and the disulfide bonds are considered to be weak (5). At present it is only possible to say that these bonds are highly sensitive to ultraviolet light.

Pollard and Setlow (6) have demonstrated that a close relationship should exist between the disulfide content of a protein and the quantum efficiency for inactivation of the protein. These investigators also state that a protein containing about 10% cystine may be inactivated by a quantum efficiency of 10^{-2} , while if the disulfide content is very low it may be inactivated with a quantum efficiency of about 10^{-3} . From our data, however, we found that the disulfide content is not strictly related to sensitivity.

RESULTS AND DISCUSSION

The ultraviolet irradiation apparatus used in the investigations consists of a low pressure mercury lamp, emitting more than 90% light of

*Presented in the Biophysics Seminar at the University of Arkansas Medical Center August 5, 1964.

253°A. Irradiation of various amino acids in aqueous solution yields quantum efficiencies on the order of 10^{-3} , with the exception of both cystine and cysteine in alkaline solution. Figure 1

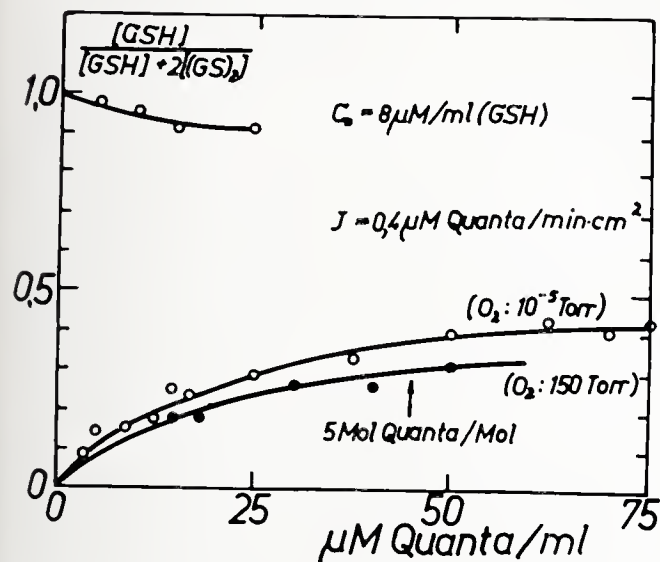


FIGURE 1

Photochemical equilibrium in uv-irradiated (2537°A) solutions of oxidized and reduced glutathion.

demonstrates the relationship between the radiation dose and the reductive splitting of the disulfide bond. The quantum efficiency of the reaction, on the order of 5×10^{-2} after the absorption of 5 mole quanta per molecule, was not greatly influenced by oxygen. If oxidized glutathione is irradiated, more than 75% is reduced to its thiol form. Both the origin of the hydrogen and the reactions leading to the loss in 25% of the glutathione are unknown. The process however may involve interactions with other amino acid residues (e.g. tyrosines) and seems to depend upon the tertiary structure of these proteins.

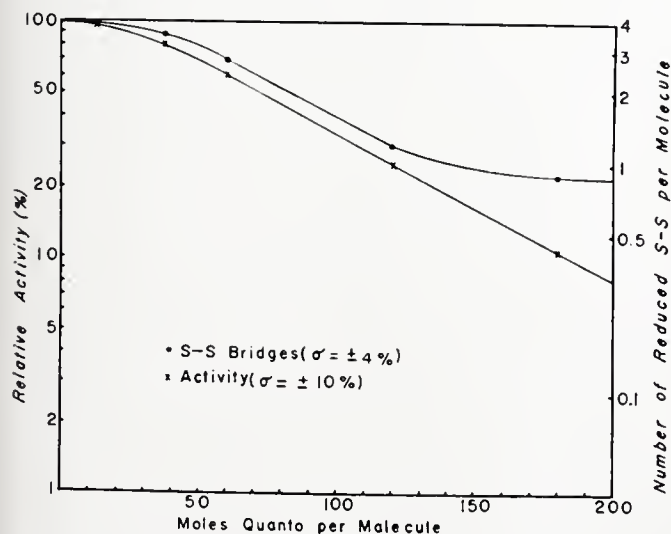


FIGURE 2

Correlation between conversion of -S-S- bridges to -SH and activity in uv-irradiated lysozyme.

Figure 2 shows the decrease in lysozyme activity and is closely correlated to the rupture of its four disulfides for ultraviolet doses up to 130 Einstein's per mole. However, it cannot be said that any specific bond rupture is responsible for loss in protein activity, but the results indicate that it is necessary to rupture at least two or three of the four disulfides present.

If one of the three disulfides links in insulin is reduced by thioglycolic acid total inactivation occurs. A similar process occurs with ultraviolet irradiation with a dose less than 30 mole quanta per mole, which in this range has the same quantum efficiency found with lysozyme (between 1.5 and 2×10^{-2}). Considering only the energy absorbed by the disulfide bond, the quantum efficiency for rupture in insulin is 4×10^{-1} , in lysozyme 3×10^{-1} and in glutathione about 6×10^{-2} . The photochemistry of insulin becomes even more complicated if the radiation dose is increased and above 30 mole quanta per mole an increase in SH production is not observed.

Figure 3 demonstrates the close relationship between cystine destruction and the remaining activity of the hormone. There seems to be no relationship between cystine destruction and disulfide reduction if we increase the radiation dose above 30 Einsteins per mole.

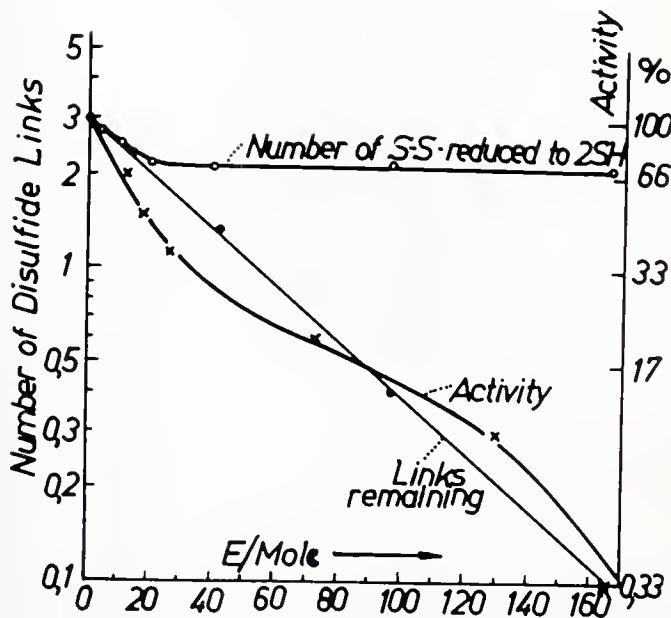


FIGURE 3

Correlation between SH-production, cystin rupture and activity of uv-irradiated insulin.

Figure 4 shows the relationship between the electrophoretic behavior and activity of ultra-violet irradiated insulin. The electrophoresis was carried out at pH 8.5 in agarose. With a radi-

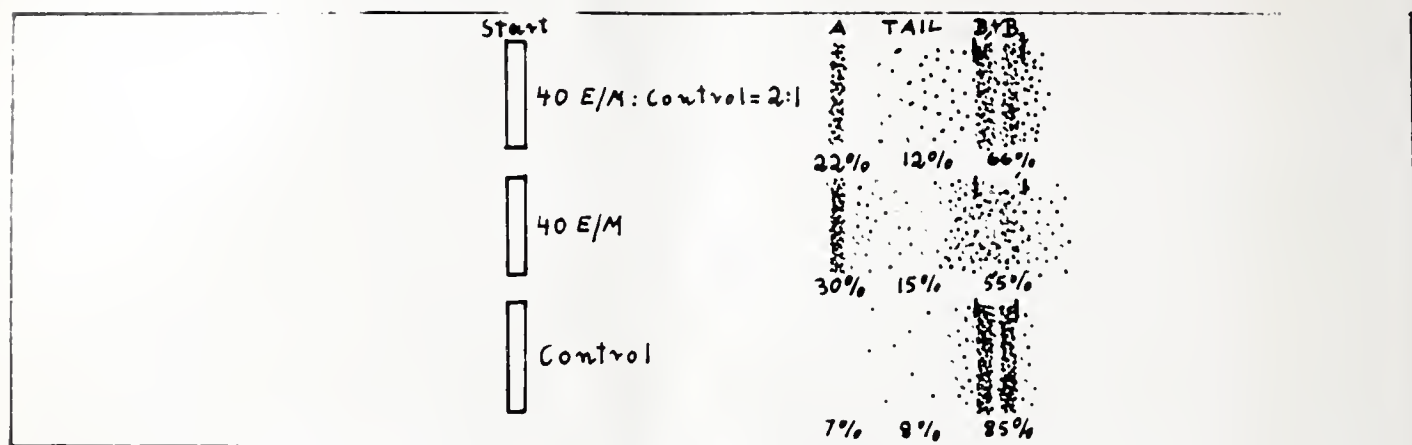


FIGURE 4

Electrophoretic behavior of uv-irradiated insulin with Amido Black staining. Top, irradiated and non-irradiated insulin; middle, insulin irradiated with 40 E. per mole; bottom, control insulin.

tion dose greater than 40 Einsteins per mole, other photochemical processes lead to a destruction of cystine residue in a very effective photochemical reaction. Besides cystine, the only other significant change was in tyrosine. A relationship between cystine rupture and tyrosine destruction probably involves a tyrosine residue located close to a cystine residue so that the excited tyrosine may readily react with the cystine molecule leading to a higher efficiency for the destruction of cystine.

It is also interesting to compare the photochemistry of disulfide containing proteins with proteins which contain practically no disulfide links. Lactic acid dehydrogenase (LDH) and alcohol dehydrogenase (ADH) have been studied for this comparison. LDH from swine heart and yeast ADH were used. The quantum efficiency to produce inactivation of each was found to be about 10^{-3} , ten times higher than was found for the disulfide containing proteins, lysozyme or insulin. The general response of LDH and ADH was found to be similar to those proteins which contained disulfide links and in the disulfide free proteins the tertiary structure was rigorously changed with ultraviolet irradiation. Changes in the reactivity of the SH groups of irradiated LDH, by irradiating with a dose lower than 1,000 mole quanta per mole produced no decrease in SH groups and can be observed if the experiment is carried out at pH 7.0 in nitrogen. In the control sample after ten minutes three SH groups have reacted. The data shows that many of the SH groups are masked and under the influence of radiation an unfolding occurs permitting access of PCMB to the SH groups.

In other experiments a pronounced protective effect was found by the substrate and coenzyme against the action of x-rays. Our investigations have demonstrated an "activation" of LDH by irradiating the enzyme in the presence of 30 mg. per ml D-Lactate, L-Lactate was found to be less effective. Other experiments show a shift in the pH optimum of LDH after irradiation with x-rays. From these results it seems that at least two different processes result in inactivation of the molecule. One process resulting in the shift in the pH optimum (from pH 8 to pH 7) and the other in a decrease in the enzymatic activity at the pH optimum. The addition of a protective agent may prevent loss in enzyme activity but it does not prevent the shift of the pH optimum.

Many properties of a protein molecule may be changed by irradiation. A change in the substrate optimum of LDH after irradiating it with 275 Krads of x-rays or 800 Einsteins of ultraviolet light per mole can be demonstrated. Consequently from the results, a shift in the Michaelis constant is obvious because the affinity of the substrate for the enzyme is decreased. Similar results were found using ADH which contains one less disulfide link in the molecule.

SUMMARY

For disulfide containing proteins irradiated with ultraviolet light a close relationship between inactivation and cystine rupture can be demonstrated. However, the quantum efficiency for the inactivation of a protein does not strictly depend on its disulfide content. Disulfide free proteins like LDH (swine heart) have quantum yields of 10^{-3} for inactivation while disulfide containing proteins like insulin or lysozyme are inactivated

with higher quantum efficiencies of some 10^{-2} . The inactivation of all proteins depends largely on changes in their secondary and tertiary structures. Besides the rupture of disulfide bonds there are pronounced changes in hydrogen bonds and hydrophobic interaction responsible for these effects. Changes in the primary structure of proteins seem less important in radiation inactivation effects.

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Newer Drugs in Treatment of Hypertension

H. F. Mizgala (3550 Cote des Neiges, Montreal),
Canad Med Assoc J 92:918 (April 24) 1965

The treatment of essential hypertension still consists of the judicious combination of two or more agents. Two groups of drugs are reviewed: (1) agents interfering with the synthesis, storage, and release of endogenous catecholamines, and (2) oral diuretic agents. The Rauwolfia compounds bretylium tosylate, guanethidine, methyldopa, and pargyline hydrochloride comprise the first group, while the thiazide derivatives, phthalimidine compounds, and spironolactones are the oral diuretics discussed. Guanethidine is the most potent and most extensively used agent of the group. While not yet fully assessed, alphas-methyldopa and pargyline hydrochloride hold promise and are useful in selected cases. The intrinsic hypotensive properties of oral diuretics, their low incidence of side effects, and their ability to potentiate the more potent agents make them useful adjuncts in the long-term treatment of hypertension. Attention is drawn to the potential diabetogenic and hyperuricemic effects of the thiazides and phthalimidine compounds.

Sweat Chlorides in Salt-Deprived Cystic Fibrosis Heterozygotes

M. F. Myers (304 Princes Ave, London, Ont),
Canad Med Assoc J 92:926 (April 24) 1965

The sweat chlorides of ten sets of parents of children with cystic fibrosis and 11 controls were studied. The purpose was to attempt to develop a test for the diagnosis of cystic fibrosis heterozygotes by subjecting both the parents and controls to a low sodium diet and comparing sweat chloride values as the diet progressed. It was hoped that the sweat chloride levels of the parents, the heterozygotes, would remain stationary throughout the diet since their children, the homozygotes, reveal this under similar conditions of salt deprivation. The sweat chloride levels of the controls, because of aldosterone, were expected to steadily decrease from the commencement of the diet to termination. A decrease in sweat chloride values of similar magnitude was found in both parents and controls as the diet continued. The study of sweat electrolyte levels in salt-deprived subjects is of no value in the diagnosis of cystic fibrosis heterozygotes.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



Multiple Causality in Psychiatric Illness and Personality Formation

Part I: Limitations due to Central Nervous System Factors

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Speculation about the causes of peculiarities and deviations of mind and behavior have been the domain of midwife, priest, philosopher, and physician probably for as long as man has been able to reason. An old wives tale has it that a child born enclothed in the amnion was predestined to be psychic. St. Ignatius of Loyola maintained that if he had charge of a child's education until he was six, he would ever remain a Catholic. Freud proposed that if the infant were frustrated at the nipple, he would bear the character stamp of acquisitiveness. Until taught the complete opposite by magazine and newspaper psychologists over the past 40 years, the common assumption among most parents was that a child got this or that temperamental quality from its father, grandmother, etc., just as it did its nose and eye color, by way of inheritance. But in fact, very little of a scientific nature was known relative to the determinants of character and mental deviation. The information vacuum invited everyone to venture opinions. Even now solid information is scanty; however, it is beginning to accumulate and the rough outlines of causative factors are taking shape. Out of what is available I have ventured to attempt an overview which at least acknowledges the multiple causes that are likely to be operating. My bias is that of insisting on looking at all possible causes; my hope is that I can avoid letting one aspect dominate my thinking to the neglect of others and that I can

temper (in this instance) the long honored principle in science and medicine of insisting upon a unitary explanation.

In psychiatry organic causation, in the broad sense, was the commonly held position of the 19th century. In the first half of the 20th century the pendulum swung far in the direction of emphasizing the importance of environmental factors. Dewey, Watson, Freud, Pavlov, the general intellectual and educational climate, the continued growth of egalitarianism in its moderate democratic form in the West and in its fractured form in the East, the tumbling explosion of prosperity, the great social mobility and ferment—all these, it seems to me, contributed to a one-sided awareness of experiential factors as causes. An emotional darkness amounting to a taboo covered the other half of causation.

Watson, the influential psychologist-scientist, represented the extreme position: "I wish to draw the conclusion that there is no such thing as an inheritance of capacity, talent, temperament, mental constitution and characteristics (18, p. 74)". And further: "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and yes, even beggar-man, and thief, regardless of his talents, penchants,

tendencies, abilities, vocations, and race of his ancestors (18, p. 82)".

The part of Pavlov's work which showed that psychological conflict could lead to abnormal behavior in dogs placed emphasis upon the structure and nature of the stress itself. Processes within the nervous system were deduced and used to good account in building theories and models of the brain. The part of his work dealing with the individual typological characteristics of the animal reacting to the stress commanded almost no attention in American psychology and psychiatry. Though Pavlov influenced Watson, he never took the viewpoint reached by Watson in the quotation above; in fact he insisted on the importance of both central nervous system type and experience in determining the outcome of individual character.

In recent years many investigators have conducted studies on both children and animals which undermarked the importance of early emotional deprivation. Again the in-born characteristics of the individual reacting to the deprivation have been neglected, and well they might, in that the deprivation employed was usually a test of sledgehammer proportions, capable of damaging the development of any type of infant, regardless of genetic endowment. In order to allow the very important individual differences to show, the test must be less powerful. A paradigm employing *lesser degrees of stress* is more in keeping with the kinds of backgrounds we find in most cases of mental and characterological deviation. Few are deprived in keeping with the kinds of experimental models that have been used. In clinical work inborn individual differences are sometimes recognized by a peremptory subscript at the end of the case write-up, under the heading, *predisposition*, in which constitutional factors are mentioned but given little significance or credence. It is understandable that the thoughts of the clinician are much more upon the history he has obtained about a patient and his overall behavior. Moreover, the great insights relative to *interpersonal* factors in the determining of character and illness of the mind may not have been obtained without this exclusive preoccupation with experience and intrapsychic dynamics.

It is true that defining and measuring the contribution of genetic or brain damage factors in a given individual is a formidable task; and it is true that information about early experiences

and interpersonal data are more easily obtained. It is tempting to "explain" the character or mental illness of a particular patient by the fact of a harsh father, an overprotective mother, or an emotional shock in infancy. But I repeat, the full spectrum of causes needs to be weighed. Where we cannot evaluate the contributions of genes, an honest, empty space should be left in the etiological formula. And as scientists, some of us can at least study the problem in a parallel form in animals, searching out leads and insights.

Within the full spectrum of causation the three great areas pertinent to psychiatric conditions are: I) Central nervous system factors, II) Early experiential factors, III) Later trauma and stress factors. The present paper deals with certain aspects of genetics and brain damage; a second paper to follow this one will present illustrative research and clinical material relative to the influence of environmental factors.

Deviation or Dysfunction of the Central Nervous System Due to Genetic Causes

A large number of diseases known to be wholly or partly on a genetic basis involve the central nervous system. Some of them have been found to involve inborn biochemical errors of which phenylketonuria and maple syrup urine disease (carboxylase deficiency disease) are examples. A numerical chromosomal error has been found to be associated with mongolism. Undoubtedly many more entities will be worked out, and it is likely that more conditions, which are due to subtler manifestations (degrees of penetrance and expressivity) of known genetic entities will be brought to light in the future.

However, I should like to bring out a different aspect which has been often neglected—namely, genetic individuality or idiosyncrasy, i.e. not deviations due to some dramatic metabolic error and associated with a clearcut "abnormal" gene, but milder variations due to the coming together of the unique combination of genes that determine the "constitutional" particulars of any given individual—and therefore determine the original directions of his reactions to his particular environment. I am referring to particulars within the brain—its hundreds of discrete parts whose functions are just beginning to be understood. External particulars are obvious and hardly arguable—hair color, shape of alae of the nose, lobe of ear, etc., these are accepted as being due to a re-sorting of genes, and the interdynamics of

genes. But, are not the kidneys, the arteries, and the "suborgans" of the brain likewise determined, or do they just happen? Particulars of the caudate nuclei, of the amygdalae, the septal region, hypothalamic nuclei, the fine structure and biochemical processes within the layers of the cortex—is it likely that these are not determined by genes or that they are less unique? Are they to be considered identical in individual structure and function from person to person? And even though their functions are little understood, should we proceed with a formulation of the causes of an individual's psychic illness neglecting the brain itself and using as ingredients only the historical elements?

In the process of evolution the heart and the kidney evolved very slowly and within narrow bands of variation, and where this was not the case, survival and procreation did not occur. In nature, where there occurred variation in temperament, mode of defenses and method of obtaining food, these probably also occurred as a slow drift (by discrete steps, but each due to a minor mutation) within a narrow band of safety, not sufficient to rupture the precise relationship of the animal to his environmental niche. But man's more protected way of life allowed for great variations among individuals within groups, to a degree impossible for other animals. The dog as man's companion and fellow worker comes nearest to this indulgence of variations: for the wide differences in temperament and specific inborn predispositions, such as the liking for water and retrieving on the part of spaniels.

Among the factors and processes in genic causation allowing for variability, the following should be mentioned: polygenes, modifiers, expressivity, Mendel's second law of heredity, "crossing over" in meiosis, and mutations. These processes and the huge number of genes permit a variability which is astronomical in size and which guarantees the absolute uniqueness of each individual.

But our subject is the fantastic variability of body, brain, temperament, and intellect possible for man. In behavior he is a unique individual in so many more dimensions than is an animal. But consider only the anatomical uniqueness—in all the $2\frac{3}{4}$ billion persons on earth there is not another whose nose is exactly like yours, or whose hands, feet, toenails, hairline, fingerprints, or brain structure are exactly like yours. Genes control the color of hair on head, face, chest, arm,

genitalia, and legs—curliness or straightness on the various parts of the body, pattern of distribution on the anterior, lateral, and posterior aspects of head, the pattern of mustache, beard, on back, chest, abdomen, whether or not there is hair on the middle phalanx of the ring finger, whether there are hair tufts on the ears of older men, the thickness, texture, length, and time of graying of the hair of the eyebrows. Such is the amazing detail of gene control. And it is undoubtedly true that this detailed control also holds for every part and cell cluster within the brain. The structure of the brain, its variability and deviations are pertinent to a consideration of temperament, personality, intelligence, special talents, and likewise for mental and emotional dysfunction. As I see it, just as there is uniqueness for the fragments of the body that are visible, so must there be uniqueness for the various parts of the brain.

Much of this variability is surely of no consequence—whether the eye is brown or blue, it can still transmit reading material. Either long or short fingers can lift a cup of water. Likewise much of brain variability is likely of no consequence to the functioning of the organism. But the contribution of variations of the structure of parts of the brain to temperament, intellect, and talent is an important and uncharted sea.

Now we can apply the theme of genic individuality to the emotional and intellectual qualities of man and their importance as predeterminants of his way of reacting to his experiences in life. Differences in general intelligence, in ability to carry a tune in music, in athletic talent have been somehow more easily accepted as being due to genetic endowment and inborn nervous system differences. But that temperamental and emotional capacities were determined within broad limits by genes has somehow been strongly avoided almost as a taboo. It has also been unpopular to maintain that the fine differences of intelligence, deviations in perceptual capacity, and other specific mental operations could be due to genetic variations. Non-urban people, close to nature, especially those who have personally reared litters of animals, are surprised that anyone could doubt distinct inborn emotional differences. For such people, when a strong temperamental trait existed and manifested early in life, it was not unexpected that the trait continued to show through at all points in life, and that it could not be entirely explained in its later

manifestations either by early experience or by later conflicts and circumstances. However, as mentioned before, it is understandable that the young sciences of psychology and psychiatry had to turn a deaf ear to all this for a long while in order to concentrate more completely on the equally important area of experiential factors. There has been an understandable fear of returning to the extreme, rigid position epitomized by the saying, "you can't make a silk purse of a sow's ear". I am opposed to this extreme position; and to continue within the context of the saying, I might say that by the influence of a proper environment, one might expect to make a good and serviceable purse out of a sow's ear.

Consider the example of a child with a strong, aggressive tendency in his temperament, and, with good intellectual capacity. Part I of the formula of causality is present. With favorable early experiences this child grows up with full and profitable flowering of his aggressiveness and intelligence, and he is well fortified for future stresses in adult life. But an unfavorable set of circumstances in the formative years could lead to a quite different form of aggressiveness and intellect. Given a timid, fearful, sensitive temperament and a good intellectual capacity, the formula is weighted quite differently in relation to the same family environment. A dominating, possessive mother might push the first child to early rebellion; the second child might get caught in this mother's net and take years to work himself out, or he may turn inward upon himself and rely on fantasy for his security. Without a good father to rescue him, he might become an unbalanced recluse, an alcoholic—depending upon other talents and opportunities. But the essential aggressiveness, or timidity would remain though manifesting in quite different forms. The particular form of aggressiveness would be a derivative of a chain of experiences, but the underlying proclivity to aggressiveness would be present as always, ready to express itself. The nervous systems of some persons seem throughout life to function with high efficiency, while others are tense, high-strung, and overreactive to minor stresses—as inefficient as a choked gasoline motor. It is not axiomatic that cold rejecting mothers, seductive fathers and the like must exist in the backgrounds of nervous people, and that when found, they are the entire and sufficient cause of the nervousness. In some cases they may be important causes, in

others they may not be.

At this point an illustration of the relative power of genotype in relation to early environment might be helpful. Krushinskii (11) using two distinct breeds of dogs (Airdale and German Shepherds) with marked differences in temperament raised a large number of each breed under *two conditions*: I) In the homes of people where each dog had individual care and ample "social" contact with humans and dogs; II) In individual paddocks in a kennel where there was no real social life and where they had only the feeding and cleaning attentions of the caretakers. The behavior being evaluated was the passive defense reflex; i.e. the tendency of some dogs to hunch down, tuck tail and slink away in the presence of a strange person or situation. In Table 1 the results show that Airdales demonstrate much less of this fearful (and/or wildness) behavior than do the German Shepherds, but for both breeds the kennel dogs show much more of it than the home reared dogs.

The work of Dykman (7), Murphree (12), and Peters shows that it is possible, by careful selection of parents, to breed dogs for either extreme timidity or for the relative absence of it. Individuals from the timid strain show extreme timidity in standard test situations with either a familiar man or a strange man. This behavior is characterized by a marked tendency to freeze (even in strange awkward positions), to show little or no playful response to a friendly man who snaps his fingers to attract them and who pats them, to give a startle reflex to slight noises, and to refuse food when a novel stimulus is present. Having developed these two contrasting strains the plan is to study them by manipulating early experience, cross-breeding experiments and by the use of various drugs.

In Krushinskii's work the two breeds have been separate genetically for hundreds of years and each of the two gene pools is relatively homogenous. In the case of the two strains of pointers the separation by temperament has been accomplished in a few years of selective breeding within a limited gene pool. In a normal "mongrel" population of dogs (as in man) the chance coming together of various combinations of genes or the occurrence of genes with variable dominance and expressivity would account for much of the common temperamental differences that exist. It is conceivable that, in man, combinations of the ex-

TABLE 1

Degree of expression of passive defensive reaction	Airedale terriers				German shepherds			
	in conditions of freedom (individual owners)		in conditions of isolation (kennels)		in conditions of freedom (individual owners)		in conditions of isolation (kennels)	
	No.	%	No.	%	No.	%	No.	%
Absent (T ⁰) -----	34	83.0	65	58.5	32	51.5	7	12.0
Very weak (T ¹) -----	3	7.5	21	19.0	6	10.0	1	2.0
Weak (T ²) -----	4	9.5	16	14.5	14	22.5	11	19.0
Strong (T ³) -----	—	—	6	5.5	7	11.5	10	17.0
(T ⁴) -----	—	—	3	2.5	1	1.5	10	17.0
Very Strong (T ⁵) -----	—	—	—	—	2	3.0	11	19.0
(T ⁶) -----	—	—	—	—	—	—	8	14.0
Total -----	41	100	111	100	62	100	58	100

Development and expression of a passive defensive reaction in dogs of different breeds, reared in different conditions. "T⁰" means that the passive defense reaction is absent; "T⁶" means that it is maximally present. This table is taken from Krushinskii (11).

treme of timidity along with a poor capacity for certain perceptual and mental operations plus a relatively deprived early environment could account for many cases of mental illness. Such a concept as this does not require the postulation of a specific biochemical error.

As illustrations of genic factors manifesting in special, delimited ways and in strikingly different forms from overall mental retardation, I will cite two interesting deviations. Specific dyslexia or "wordblindness" is a condition that has been known about and studied by a few specialists since before the turn of the century. In recent years evidence has accumulated indicating that in some cases dyslexia can be due to a genic factor. Hallgren (8), Hermann (9), and Norrie in Scandinavia found concordance in all of 12 sets of identical twins with this condition as compared with 11 out of 33 sets of fraternal twins. It often occurs in persons whose intelligence is normal in other respects. Such a child, for example, may be functioning intellectually at the 6th grade, yet reading at a 3rd grade level. These children misperceive letters, syllables, and words and seem unable to build up memories of what sounds go with what written symbols and syllables. Theoretically this could be based on auditory misperception, visual misperception, feebleness of associative memory linking vision and sound forms, or a defect in the perception of and blending into wholes of sequences of symbols. At any rate there is evidence that some cases of dyslexia are due to factors of

heredity. Dyslexia due to other causes will be mentioned under brain damage.

The second condition I shall mention has been shown by Shaffer (15) to occur in Turner's syndrome, a known genetic entity. The defect is in the area of visual-motor perception and coordination. These cases show an average difference of 19 points between *verbal* and *performance* scores on the Weschler Intelligence Test. The underlying defect seems to lie in a deficiency of the ability to synthesize wholes out of parts and in motor execution of tasks requiring complex integrations of perceptions.

The existence of these conditions, the well known differences in the ability of individuals to carry a tune, harmonize, the differences in finger dexterity, gross motor coordination and timing (e.g., in athletics), the differences in emotional qualities, differences in ease of self-inhibition—all these point to the existence of differences in the central nervous system—largely on a genetic basis: either due to the "normal" occurrence of certain genes and gene combinations or due to discrete genic irregularities.

The existence of some perceptual deficiency, or the existence of a low threshold for anger, fear, or for sensory stimulation, could place a special burden on an individual which in association with a stressful environment conceivably could lead to mental and emotional abnormalities, even to severe mental illness.

Relative Dysfunction of the Central Nervous System Due to "Maturational Lag"

Lauretta Bender's name is associated with the concept of maturational lag (2). This concept states that not all parts of the central nervous system mature or develop at the same rate in all individuals. For example if that part of the brain which handles some key aspect of language lags behind other parts of the brain, the child may have difficulty learning to read or have a moderate to mild aphasia. She feels that maturational lags of the brain underlie the childhood psychoses and other deviant behavior conditions in children. In the case of the childhood psychoses the lag is extreme, so deviant in fact, and so chronic, that the term maturational lag seems inappropriate, as though implying a temporary condition. For such cases the term *maturational arrest* is more appropriate.

Maturational lag means a transitory lag in the work of Zeller in Germany and Simon (16) in this country. They deal with lags of parts of the body behind the expected growth status for a chronological age, as determined by anthropological measurements in large number of children. They found that when a child has a "pre-school" physique (based on ratio of torso or circumference of head to arm and leg length), even though he has reached the chronological age of six or seven, he does less well on the average in the first grade than a child with a "school" physique. I.Q.s were matched and of course they point out that this finding is a statistical entity, and can not be used to predict the performance in the first grade of a particular child. However, the placing of children in school too early and in conjunction with the existence of other unfavorable factors, may set off chains of events in a child's life, detrimental to his later adjustment.

Dysfunction of the Central Nervous System Due to Early Damage

The vulnerability of the developing brain to various sources of damage is well known in medicine. Brain damage, mild or severe, is an important cause of limitation imposed upon the development of muscular coordination, personality, and intellect. There is a range or spectrum (14) of damage from severe to minimal; however, I do *not* mean to imply that the effects on behavior or intellect are directly proportional to the extent of the damage. As far as is known at present a small lesion at some crucial locus in the limbic system,

or slight, diffuse lesion in the cortical tissue which serves as a link between two primary areas may cause pronounced effects in emotional, intellectual, or motor functioning.

The brain is a very delicate organ containing a multitude of interrelated systems and "sub-organs", and the more intricate, refined processes within it seem to be most susceptible to damage. Evolution-wise, the more recently developed are those parts of the brain which are the substrates for symbol handling, language, complex integration of sensory information and memory traces, the shuttling back and forth between concrete and abstract material, relative freedom from immediate stimulus-response behavior etc.—and those parts seem to be exquisitely vulnerable.

A characteristic of brain damage in utero and in early childhood is that it seems to have diffuse effects. For example there may be a poor control of attention and a general motor hyperactivity, even a hyperactivity of thought processes. There may be a dysfunction in the area of language, abstract thinking and coordination of movement. By contrast, damage to the adult brain is more apt to produce discrete dysfunction. This is not to say that discrete, even solitary, dysfunction cannot occur in children, but multiple effects are more common.

Usually brain damage in children brings to mind the well-known, easily recognized manifestations: mental retardation, cerebral palsy, and epilepsy. Generally speaking, these are not such difficult diagnostic problems; however, there are subtler effects of brain damage which are difficult diagnostic problems, and in fact may go unrecognized. In the last few years persons in education, child psychology and child psychiatry have run increasingly head-on into this problem. Here are some of the names that have appeared in the literature in connection with this protean entity: brain damage syndrome, minimal brain damage, hyperkinetic syndrome, Strauss syndrome, minimal cerebral dysfunction, minimal brain dysfunction, brain damage learning and behavior syndrome, and others. Recently a committee of workers in education and medicine sponsored by the National Institute of Neurological Disease and Blindness agreed to refer to the group of entities as *brain dysfunction syndromes*. Educators prefer to use the term *learning disability*; in doing so they set to one side the question of etiology. Most workers are now agreed that the condition is

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Lomotil is not known to inhibit nonpropulsive intestinal movements.

Roentgenograms demonstrate that this activity occurs within two hours after oral administration and persists for at least six hours.

Comparative studies in the rat show Lomotil to be more effective in inhibiting fecal excretion than either codeine or morphine.

Analgesic, anticholinergic, mydriatic and gastric secretory effects have not been significant.

Reduction of propulsive motility with Lomotil relieves spasm and cramping, allows physiologic absorption of fluid and reduces frequency of evacuations to provide prompt, symptomatic control of virtually all diarrheas.

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diphenoxylate hydrochloride2.5 mg.

(Warning: May be habit forming)

atropine sulfate0.025 mg.

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stops diarrhea



Precautions: Lomotil is an exempt narcotic preparation of very low addictive potential: more than three million prescriptions have now been written for Lomotil. Recommended dosages should not be exceeded. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates.

Side Effects: Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness and insomnia.

Dosage: For full therapeutic effect—Rx full therapeutic dosage. The recommended initial daily dosages, *given in divided doses*, until diarrhea is controlled, are:

Children:

- 3 to 6 months—3 mg. ($\frac{1}{2}$ tsp.* t.i.d.)
- 6 to 12 months—4 mg. ($\frac{1}{2}$ tsp. q.i.d.)
- 1 to 2 years—5 mg. ($\frac{1}{2}$ tsp. 5 times daily)
- 2 to 5 years—6 mg. (1 tsp. t.i.d.)
- 5 to 8 years—8 mg. (1 tsp. q.i.d.)
- 8 to 12 years—10 mg. (1 tsp. 5 times daily)

Adults:

- 20 mg. (2 tsp. 5 times daily or
- 2 tablets 4 times daily)

**Based on 4 cc. per teaspoonful.*

Maintenance dosage may be as low as one fourth the therapeutic dose.

Lomotil is a brand of diphenoxylate hydrochloride with atropine sulfate; the subtherapeutic amount of atropine is added to discourage deliberate overdosage.

SEARLE

*Research in the
Service of Medicine*

mainly due to a brain condition and not to factors of early experience; e.g. parental handling or methods of teaching. However, much research needs to be done in this area to uncover causes and interactions.

In the *brain dysfunction syndromes* the overall intelligence quotient may be average or even above average, but certain functions will fall appreciably below the others. The most common difficulties in school occur in reading, arithmetic, and conduct. Writing is also frequently affected. Underlying these "retardations" are defects in attention, perception, memory, action-inhibition, and visual-motor coordination. These children are often quite overactive and subject to impulsive speech and behavior. Both teachers and parents are puzzled with their Johnny—he looks normal, he seems intelligent, but he can't read, he can't remember or perform well in activities requiring *long sequences* of words or actions, he can't sit still, he is clumsy with his hands, his writing is unsightly, etc. On examining integrated motor functioning, he may show dysdiadochokinesia, clumsiness of fine movements, and an impaired ability to draw geometrical figures. In perceptual tests he may have difficulty in distinguishing foreground figures from the background, in putting picture puzzles together, or in remembering a series of numbers. The extreme forms have long been recognized; what is new is that *subtler gradations of deficiencies* are being recognized; and they are no longer being attributed automatically to laziness, lack of motivation, poor home environment, or to some traumatic experience. The fact that the brain can vary or deviate greatly in its capacities for discrete mental and motor operations is being increasingly recognized—and recognized as a cause for learning and behavior problems. With such subtle but important handicaps, these children are often misunderstood, and they may become emotional and social casualties. In the past these perceptual and perceptual-motor deficiencies have often been thought to be due to anxiety, but the important question is this: *why does this particular perceptual function succumb to anxiety and not other functions, and why does it not occur in all children under the pressure of their anxieties?* The most economical answer is that the function in question represents a relative brain deficiency which shows up under the normal pressures of school and childlife.

As stated before many cases of "minimal" brain

dysfunction can be due to early brain damage (14, 3). What are some of the possible causes of damage, gross or subtle? Rubella in the first trimester, especially the first four weeks of pregnancy is well known now as a cause of birth defects. It may also affect the brain. It is not unreasonable to assume, in respect to this disease, that there is a gradation of damage from severe to mild; however, the severity of the mother's disease is no index for the severity of effect on the fetus. The time (in weeks of pregnancy) the mother has rubella is critical for determining what organs will be affected. Other viruses reported as either infecting or affecting the developing child in utero are influenza A, smallpox, cowpox, chickenpox, common measles, cocksackie B and polio. Unrecognized toxoplasmosis and cytomegalic inclusion disease in the mother may affect the gestating child. A virus of sheep known as "blue tongue" has been shown to produce birth defects in the brain following its administration to sheep in the early stages of pregnancy. It is just conceivable that other known viruses and viruses as yet undiscovered, when infecting the mother in pregnancy, may cross the placenta and cause various degrees of damage to the developing fetus. The existence of critical periods for damage due to rubella brings to mind the work of Duffy and Murphree (5, 6) in which they found that there are sharp critical periods for infant rats during which the injection of certain viruses will have clear effects on the brain which shows up in later behavior. The most marked effects were on maze learning ability and on activity (13).

Many factors have been recognized, such as irregularities of the placental vessels, of placental implantation, blood incompatibilities leading to kernicterus, cord twisting or choking, asthma in the mother, pneumonia, heavy dosages of drugs, anemias, uterine bleeding, intrauterine infections, hypertension, prolonged pregnancy, precipitous delivery (before proper molding of the head), complications of inadequate opening, instrument injury, prolonged labor, dry birth, prolapsed cord, etc. There is some evidence that less severe jaundice (in hemolytic anemia of the newborn) may lead to various degrees and kinds of mental retardation (4). Other factors associated with high mortality, deformities, and brain damage are: maternal age, endocrine disorders of thyroid and pancreas (prediabetes) prematurity and nutritional factors. Early motherhood may also be a fac-

tor. The presence of one of the other of these complications of pregnancy does not allow us to predict how a particular child will turn out; but statistical studies (14) have been done in which, when the birth results of children with behavior problems, learning problems, reading retardation, etc. are studied, it is found that they experienced a much higher proportion of complications of pregnancy than did children without those problems. It is thought that considerable undetected brain damage occurs during the perinatal period and at birth. Actually, one might expect that minor degrees of damage would be far more common than severe degrees. It would seem that these children, whose brains are slightly less efficient, would be more apt to have learning and behavior problems later on, and that this would be especially true where environmental factors are also unfavorable. It seems probable that a higher percentage of them would also have various personality and emotional problems as adults. There is evidence that some of these cases are predisposed to schizophrenia (1).

It has long been known that head injuries, encephalitis, and meningitis in children can cause marked intellectual and personality changes. The illness known as post-encephalitic syndrome came to light after the influenza epidemic of 1918 (10). These cases often manifested hyperactivity and gross personality changes. Others resulted in the basal ganglia disease called post-encephalitic Parkinsonism. One study (17) showed that when measles, mumps, and chicken pox were sustained at or under age two, there was a greater chance of the occurrence of reading retardation. This was a statistical study in which children with reading problems were compared with children without this deficiency. With such results one is not justified in predicting reading retardation in an individual case. Again the nervous system appears to be specifically vulnerable during certain critical growth periods.

A final interesting facet attached to the "organic" side of causation is the sex ratio. In common with mortality figures, boys far outnumber girls in the following: stuttering, dyslexia, enuresis, encopresis, firesetting, hyperactivity, and a number of others. Why this is so is still not known. Endocrine factors, maturational schedule, critical periods, and cultural factors may play a part in this strange phenomenon.

In Part II (to be published in a subsequent issue of this journal) I intend to discuss interpersonal factors and psychic trauma as determinants of character structure and emotional maladaptation. I feel that only on such a broad canvas, even though our firm information is so little, can we reach toward a true understanding of causes lying behind the structure and peculiarities of mind and emotion.

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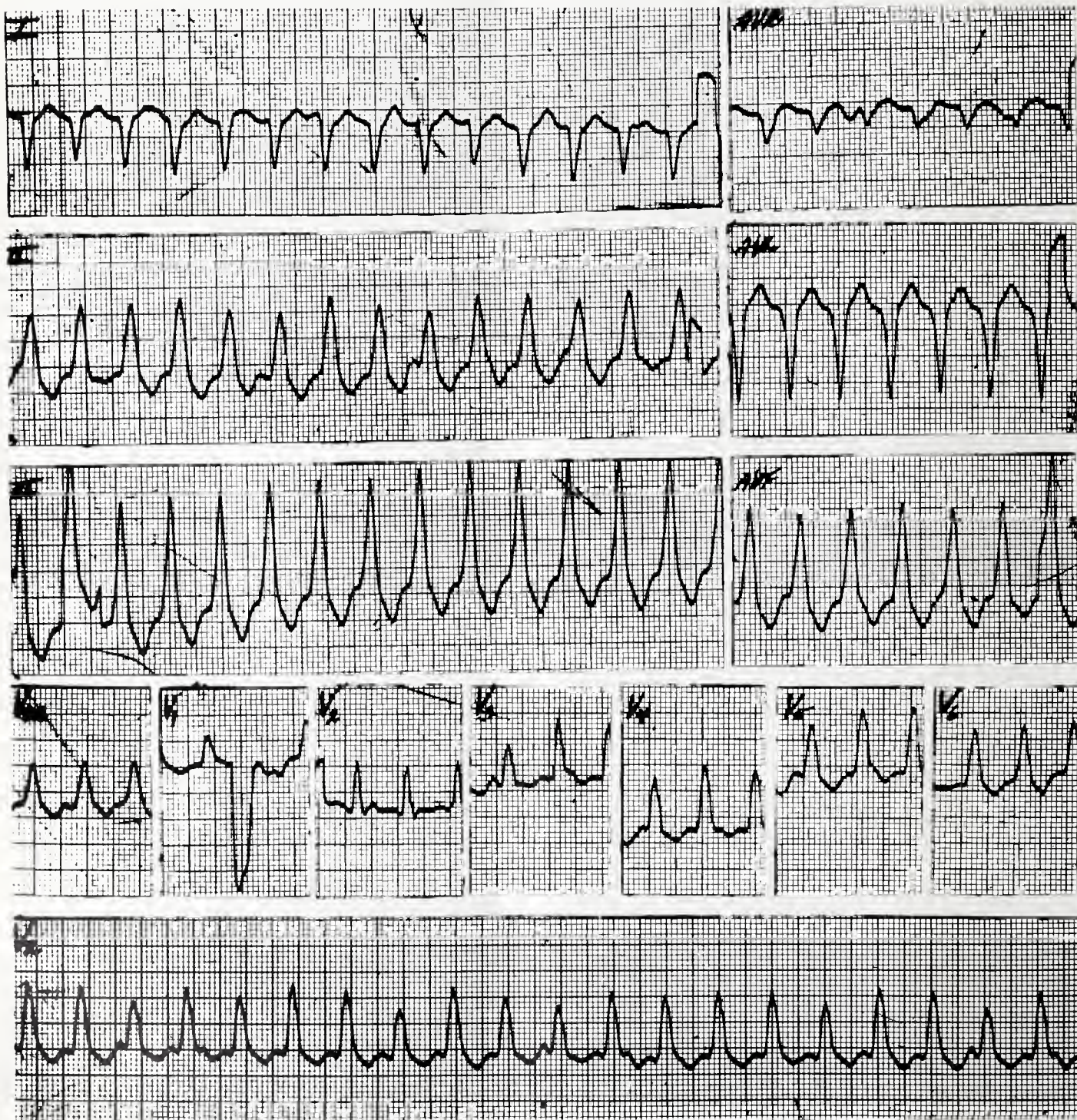
ELECTROCARDIOGRAM



OF THE MONTH

AGE: 34 SEX: M BUILD: STOCKY BLOOD PRESSURE: 90/70
CARDIAC DIAGNOSIS: Ventricular Tachycardia
OTHER DIAGNOSES: History of two Myocardial Infarctions
MEDICATION: Quinidine, amount not known
HISTORY: Chest pain last night, relieved with Nitroglycerine

SEE ANSWER ON PAGE 116



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

SEE ANSWER ON PAGE 116



No. 16-17-75

27-year-old male

HISTORY: The patient's disease was diagnosed at the age of 3 years. Two brothers are similarly afflicted. His orthopedic history is that of painful swelling of the joints on many occasions. This swelling occurred after trauma of even mild degree and was sometimes spontaneous. Certain pertinent history is withheld to make the diagnosis more challenging.



Comprehensive Mental Health and Mental Retardation Planning

The Arkansas State Board of Health in July 1963 received the first of two special federal grants specifically designated for planning mental health programs. The 1963 grant was in the amount of \$50,000 for each of two consecutive years and was to be used for Comprehensive Mental Health Planning. In order to receive these grant funds, the Health Department had to submit for approval a plan outlining step by step the procedure to be used in the development of this comprehensive plan. An interagency-interdisciplinary committee was formed with Dr. J. T. Herron, State Health Officer, as its Chairman. This committee assisted the Health Department staff in the formulation of the plan submitted to Washington for approval. The above advisory committee then became the Core Advisory Committee for the Planning Project itself. The members of that committee are: Dr. E. J. Easley; Mr. Robert D. Edwards; Dr. Orie L. Forbis, Jr.; Dr. George W. Jackson; Dr. W. H. Riley, Jr.; Dr. Bryant Swindoll; Mrs. Angie Faye Waldrum, R. N.; Mrs. Roger J. Warner; Mrs. Ardelia Womack; Dr. William O. Young; and Dr. J. T. Herron, Chairman.

Two members of this committee became staff for the Project: Dr. Orie L. Forbis, Jr., Director of the Child Guidance Clinic at the University of Arkansas Medical Center, was retained as Psychiatrist Director of the Project one-fifth time; and Roger J. Warner, Chief Psychologist, Mental Hygiene Division of the Health Department, became Psychologist Coordinator of the Project full time. All agencies and organizations, public and private, that had a direct stake or even an indirect interest in the development of such a plan were contacted and asked to name a representative to the Planning Project. The persons named were then divided into eight Task Forces, each Task

Force being assigned a specific area upon which to concentrate its two year deliberations. Each Task Force was then assigned additional professional and lay persons to give it greater balance and power. The eight Task Forces are as follows: Task Force I—Out-Patient Facilities; Task Force II—In-Patient Facilities; Task Force III—Manpower; Task Force IV—Law and Legislation; Task Force V—Education and Rehabilitation; Task Force VI—Research; Task Force VII—Financing and Public Awareness; Task Force VIII—Coordination.

At the end of the two year period June 1965, each Task Force is to submit to the Core Advisory Committee a report which is to include recommendations covering both short and long range goals for the development of facilities or services within their area of responsibility. Several of these Task Forces have, at the time of the preparation of this article, submitted preliminary reports for consideration of their members.

Many persons have put considerable time and effort into the development of the various reports. The Core Advisory Committee is to take the individual Task Force reports and combine them into a state plan, again listing recommendations for both short and long range goals and assigning priorities to these recommendations. The plan is then to be submitted to the Legislature, Governor, Federal Government, and the citizens of Arkansas for consideration and implementation.

One recommendation already developed by the Planning Project has become quite well publicized throughout the State. That recommendation was that the approximately 500 unused beds at both McRae and Booneville Tuberculosis Sanatoria be utilized. The Task Force suggested that this could be accomplished by combining the TB patients in the two Sanatoria into one of the fa-

cilities, specifically Booneville since it had the capacity to meet the current number of patients. This would free McRae for use by some other group seriously in need of a large number of in-patient beds. The Task Force then pointed out that the most pressing present need in Arkansas for in-patient beds was for the mentally retarded. The Children's Colony currently has a waiting list of about 1,300 such persons, most of whom are under 21 years of age. The number of mentally retarded adults is not definitely known. The Task Force further recommended that special consideration be given the use of this facility for the severely physically handicapped retarded, whose needs are the most inadequately met of all the retarded.

The 1965 Legislature established a Medical Services Advisory Committee, and made it the responsibility of this Committee to formulate recommendations regarding the utilization of currently empty institutional bed space.

This is only one example of the recommendations expected to be included in the mental health plan for Arkansas. It is anticipated that the rough draft of the plan will be prepared by June 30, 1965, with the final report being due on September 1, 1965.

In July 1964 the State Board of Health, after being named by the Governor, received a federal grant of \$30,000 for an eighteen month period to develop a comprehensive statewide plan to combat mental retardation. Once again the Health Department had to submit to the Federal Government a plan spelling out in detail the expected method of utilization of the grant funds. The specifications in the grant were quite restrictive, and only some 17 states including Arkansas managed to have their plans approved and received their funds on the initial starting date of July 1, 1964. The Inter-Agency Advisory Committee on Mental Retardation serves as the advisory committee for this Planning Project, and Mrs. Elizabeth Alstadt is the Coordinator. The members of the above mentioned Committee are: Mr. Charles Acuff; Mr. William Duvall; Dr. E. J. Easley; Mr. William Eldredge; Mr. Nils Florentz; Dr. Orie L. Forbis, Jr.; Dr. George W. Jackson; Miss Ruth Johnston; Mr. Roy Parks; Mr. Don Russell; Mr. Jake Sklar; Dr. Bryant Swindoll; Mr. A. G.

Thompson; Mr. Roger J. Warner; Mr. Storm Whaley; Mr. J. M. Woolly; and Dr. J. T. Herron, Chairman.

This Project, like the Mental Health Planning Project, comes under the responsibility of the Mental Hygiene Division of the State Health Department. The Project functions in much the same way as the Mental Health Planning Project described above and representatives forming Task Forces were selected in much the same fashion. The Task Forces for the Mental Retardation Planning Project are as follows: Task Force I—Community Services; Task Force II—Centralized and Institutional Services; Task Force III—Manpower and Financing; Task Force IV—Public Awareness and Education; Task Force V—Coordination, Legislation, and Law; Task Force VI—Research and Prevention; Task Force VII—Employment and Rehabilitation.

During the fall of 1964 the State Health Department was notified that, since some of the states had not submitted an approved plan, additional planning monies were available and those states with approved plans could, if they desired, submit additional planning grant proposals which would be considered on a competitive basis for supplementary grants. The Department submitted four grant proposals and was extremely fortunate in having three of these proposals approved for a total of \$23,230.67. One of the grants provided staff for a survey of the waiting lists at the Arkansas Children's Colony, the Arkansas State Hospital, and the Arkansas Child Development Center. The second grant was to support a much needed biometric evaluation of persons already institutionalized in the various state institutions. The third grant employed staff to serve as liaison between the Planning Project itself and the leaders responsible for community action in Arkansas.

Each Task Force is to complete its report with recommendations and submit to the Inter-Agency Advisory Committee which will combine them into one complete report again for submission to the Legislature, Governor, Federal Government, and the citizens of Arkansas.

This report is expected to be in rough draft by December 31, 1965.



EDITORIAL

JOIN OUR MEDICAL SOCIETY*

Louie A. Whittaker, M.D.*

Mother of small boy to child psychiatrist: "Well, I don't know whether he feels insecure, but everybody else in the neighborhood does!"

Perhaps you feel insecure in our medical society. Could it be this insecure feeling that is separating us from presenting a united front to government, public do-goodness, or the socialist aims of those who would enslave us as doctors?

Now, more than ever before, we must join together into a strong, aggressive, intelligent band to thwart the intent of those who would control our practice of medicine, force us into regimentation and dictate how we shall care for our patients.

Organized medicine is essential for our survival, for our freedom to care for our patients as we believe best, and for us to think as independent citizens.

Remember, if it were not for our medical society and its officers and committee workers, we would not have a medical practice law which protects our legal rights as physicians.

If it were not for the tireless, selfless work of these committees, we would not have any bargaining strength when we do business with government agencies.

Many public health measures have either been started or influenced by our medical society, these measures have certainly brought a better life for all of us. And such activities have not been made by other branches of the healing arts.

So, if you have an idea to improve the lot of all of us or if you would like to work to better our medical society, don't be bashful. Improve your sense of security by honest, intelligent support in a sense of "All for one and one for all".

*President-elect, Arkansas Medical Society.



Granulocyte Kinetics in Disease

Alfred Kahn, Jr., M.D.

Wintrobe et al. from the University of Utah School of Medicine state that their studies indicate that about half the neutrophil leukocytes of the blood are in circulating and about half adhere to the walls of venules. They consider these cells which are constantly interchanging to be the Total Blood Granulocyte Pool. Using special techniques the authors could measure leukocyte production, the size of TBGP, and leukocyte destruction in conditions in which the leukocytes are increased.

Athens, Raab, Haab, Boggs, Ashenbrucker, Cartwright and Wintrobe in a continuing series of papers on leukokinetics have reported on blood granulocyte kinetics in chronic myelocytic leukemia. (Journal Clin. Investig., Vol. 44, p. 765, May 1965). This was accomplished by studying 29 patients with chronic myelocytic leukemia with varying blood counts. The patients were infused with granulocytes marked by exposure to diisopropyl fluorophosphate (DFP³²).

In chronic myelocytic leukemia, the total blood

granulocyte pool was increased from 10 to 150 times normal. The blood granulocyte disappearance time was prolonged.

In a companion paper, the same group studied the granulocyte kinetics in polycythemia vera, infection, and myelofibrosis (J. Clin. Investig. Vol. 44, p. 778, May 1965). Sixty studies were carried out and compared with normal patients. The total blood granulocyte pool was increased where the

white blood cell count was over 10,000 per cubic millimeter. Enlargement of the pool was found in 8 of 16 patients with white blood cell counts between 7,500 and 9,890 per cubic millimeter; this is thought to reflect an intravascular shift. The granulocyte disappearance time was moderately increased in 56 of 60 studies. They felt that this was the result of the enlarged pool rather than a speeded up renewal rate.

MEDICINE IN THE



Gift to Memorial and Honor Fund

Dr. C. L. Hyatt of Monticello, Arkansas, presented a gift to the Memorial and Honor Fund of the University of Arkansas School of Medicine in memory of Dr. L. H. McDaniel of Tyronza, Arkansas.

Rockefeller Foundation's Population Council Makes Grant for Arkansas Study

The population Foundation which is supported by the Rockefeller Foundation has granted in excess of \$12,000 to underwrite a study of a large scale family project in Arkansas. The study, which will be made by E. Stewert Allen, M.D., of Little Rock, has a dual purpose in that it will evaluate several new aspects of intra-uterine contraception and will provide detailed information of the demographic effectiveness of a large scale, indigent population family planning service.

"Awards for Cancer Control Programs"

Meritorious Service Awards, given in recognition of distinguished voluntary professional services to the cancer control program in Arkansas, were presented by the State Cancer Commission to forty-two doctors during May and June. Recipients of these awards contributed services, without remuneration, as a Commissioner and/or a Director of a Tumor Clinic since the Commission was established by the 1945 General Assem-

bly, and the Tumor Clinics were organized in 1947 and 1948 under the sponsorship of the Commission.

These awards were made initially during the twentieth year of the Commission's program and it is planned to present them currently in the future.

On behalf of the Commission, Dr. Frank G. Kumpuris, an award recipient himself as a member of the State Cancer Commission and a past Director of St. Vincent Tumor Clinic, made presentation of the Meritorious Service Awards to the following doctors at staff meetings in hospitals where Tumor Clinics are located: A. J. Baker, George C. Burton, A. D. Cathey, and John H. Pinson, Jr., South Arkansas Tumor Clinic, Warner Brown Hospital, El Dorado; Carl A. Rosenbaum, William S. Orr, Jr., E. Clark Gillespie, William J. Rhinehart, Calvin J. Dillaha, John W. Downs, Bill Dave Stewart, Kay M. Kreth, James R. Morrison, G. Thomas Jansen, Joseph A. Buchman, M. J. Kilbury, Sr., M. J. Kilbury, Jr., Henry G. Hollenberg, James H. Growdon, Peter O. Thomas, and the late Joe H. Hardin, St. Vincent Tumor Clinic, St. Vincent Infirmary, Little Rock; and Charles W. Anderson, who has been Director of Southeast Arkansas Tumor Clinic, Davis Hospital, Pine Bluff, since 1955.

Dr. Jean C. Gladden, of Harrison, an award recipient himself as a past member of the State

Cancer Commission and a past Director of Northwest Arkansas Tumor Clinic, Boone County Hospital, Harrison, made award presentations for the Commission to the following doctors: G. Allen Robinson, Rhys A. Williams, and William A. Hudson.

Mrs. Mason G. Lawson, Commissioner, presented Meritorious Service Awards on behalf of the Commission to the following doctors, who are past Directors of Bowie-Miller Counties Medical Society Tumor Clinic, St. Michael's Hospital, Texarkana: William B. Harrell, Charles H. Frank, John Walter Jones, R. H. Chappell, Richard R. Brunazzi, Robert K. Harrison, William D. Dawson, and Charles L. Leslie.

Dr. Edward M. Cooper, Director of Northeast Arkansas Tumor Clinic, St. Bernard's Hospital, Jonesboro, since 1958, received the Meritorious Service Award, presented on behalf of the Commission by Mrs. William G. Utterback, Administrative Officer.

Meritorious Service Awards were also made to Dr. W. R. Brooksher, Fort Smith; Dr. D. W. Goldstein, Fort Smith; Dr. Charles A. Archer, Jr., Conway; the late Dr. J. J. Monfort, Batesville; Dr. Julius H. Hellums, Dumas; and Dr. W. Martin Eisele, Hot Springs.

In citing these doctors for Meritorious Service Awards, the Commissioners expressed appreciation also to members of the Tumor Clinic staffs, who give their services on a voluntary basis as well as the Tumor Clinic Directors, making possible diagnosis and treatment without cost for medically indigent patients admitted to the Tumor Clinics. Appreciation was also expressed to hospital staffs and other individuals and agencies for their teamwork, making possible American College of Surgeons approval for the Commission-sponsored Tumor Clinics in Arkansas.

Medical School Application Trends For Classes Entering 1954-1965

The upward trend in first year medical applicants that started with the class entering in 1962 has continued for the 1963 and 1964 classes. Based on the number of students taking the Medical College Admission Test (MCAT) during 1964, however, it appears that the number of applicants for the 1965 class may show a slight decrease from the preceding year. This may be due to the publicity that was given during the past year to the increased competition for places.

The number of applicants to first-year classes increased from a low of 14,381 for 1961 to 17,668 for 1963, a rise of 23%. The estimated applicants for 1964 and 1965 are conservative approximations based on the actual number of students who have taken the Medical College Admission Test the past two years.

The number of applications increased by 30% from 53,832 for 1961 to 70,063 for 1963. Preliminary reports from schools to the Association of American Medical Colleges support a conservative estimate of 84,000 applications for 1964 and 85,000 for 1965. The number of students taking the MCAT has grown dramatically from 13,606 for the class entering in 1960 to 19,323 for the class entering in 1964, an increase of 42%.

The number of places in the freshman class has risen from 7,576 in 1954 to 8,772 in 1963 with the estimated class sizes for 1964 and 1965 being 8,800 and 8,900 respectively. While this is a substantial increase in absolute terms, it is relatively a much smaller gain than that in the number of applicants. The estimated number of 22-year olds based on births in the U.S. remained relatively constant from 1954 to 1961 but has risen markedly since then.

The Month in Washington

The American Medical Association warned Congress that passage of the medicare bill could lead eventually to the troubles encountered in nations that have centralized government medical plans.

"The American system of medicine for generations has been a system of quality medicine, practiced through a voluntary relationship between patients and physicians, with doctors free to make decisions based on the patient's specific needs and nothing else," Dr. Donovan F. Ward, AMA President, told the Senate Finance Committee.

"Yet we have seen the trying problems in other lands and the results engendered by centralized government programs to provide health care for a large segment of the population," Dr. Ward declared. "Long waits, poor equipment and facilities, short, impersonal examinations, and lots of record keeping appear to be the major accomplishments of nationalized health systems. Can we hope the American plan will be so different as to negate all these adverse factors?"

He continued:

"We think not. Forget for a moment the stag-

gering, though unpredictable, cost of the pending program. Ignore the administrative problems that it would create, and the burden it means for wage earners at the low end of the income scale.

"Look only at the intrusion of government in the field of medicine, which cannot be avoided if this measure is adopted. With the quantity of care thus restricted for the sake of controlling costs, the quality must deteriorate. The patient is the ultimate sufferer. But his disillusionment is shared by those who serve him. With the advent of state medicine, professional discontent appears to be the rule rather than the exception. Look again at the experience of the foreign programs.

"This may be our last chance to ask you to write legislation which will meet the nation's needs and at the same time avoid the pitfalls of a government-financed, government-controlled, and government-oriented health care system. This may be your last chance to weigh the consequences of taking the first step toward establishment of socialized medicine in the United States," Dr. Ward concluded.

* * *

Continuing emphasis on vaccination against smallpox in the United States was urged by the AMA. Following announcement that a case of the disease had been discovered in Washington, D.C., the AMA declared that there was no basis for panic or alarm, and said that there was no need for emergency, mass vaccination campaigns.

The AMA said the effectiveness of endeavors of the American Medical Association, local medical societies, physicians, hospital administrations, and government health agencies to raise the level of immunity to smallpox through vaccination were challenged with the first case of smallpox reported in this country in 20 years.

"Because of the hazard of such importations of smallpox, a disease which can kill or maim, the AMA and others have advocated continuing vaccination programs in this country," the AMA said. "The danger was particularly emphasized over two years ago by Dr. Raymond L. White, director of the Division of Socio-Economic Activities of the AMA. Dr. White pointed out the need for 'defense in depth' through ongoing intensive vaccination programs for those who are apt to contact international travelers, and those who meet or treat the sick, in addition to the general public programs."

The Supreme Court held that Connecticut's 1879 law forbidding use and prescription of contraceptives is unconstitutional.

The majority in the 7-2 opinion said that "a governmental purpose to control or prevent activities constitutionally subject to state regulation may not be achieved by means which sweep unnecessarily broadly and thereby invade the area of protected freedom."

The challenge to the Connecticut law was made by the State's Planned Parenthood League. It stemmed from the conviction of Mrs. Estelle T. Griswold and Lee Buxton, M.D., on charges of violating the law by operating a birth control clinic.

An attempt to challenge the law was made in 1961, but the Supreme Court refused to consider the issue then because no arrests had been made.

"Would we allow the police to search the sacred precincts of marital bedrooms for telltale signs of the use of contraceptives?" the opinion said. "The very idea is repulsive to the notions of privacy surrounding the marriage relationship."

* * *

A Senate Aging subcommittee recommended that self-employed persons be given special tax incentives to encourage them to take part in private pension programs. The recommendation was included in a report by the Subcommittee on Employment and Retirement Incomes which held four days of hearings on the subject in March.

The subcommittee endorsed two tax changes that the American Medical Association had urged in a statement to the group earlier this year. One would remove present restrictions in the Smathers-Keogh law that allows tax deferrals on money invested in pension plans by self-employed persons, including physicians. The other would allow physicians who form professional groups to have their business income treated for Federal tax purposes the same as other business corporations.

* * *

The Food and Drug Administration has proposed that foods intended to regulate the intake of fats be accurately labeled to show the amounts and classes of fatty acids, including polyunsaturates, contained in them.

* * *

The drug industry is establishing a foundation to help promote "scientific and medical research." The foundation being established by the Pharmaceutical Manufacturers Association will plan

and initiate research as well as collect and distribute results of the research. It also expects to help finance research projects, the PMA announcement said. The foundation will begin work on a modest scale, "first assembling data on what now is being done in the field by industry, research and educational groups," PMA said.

THINGS TO COME



Course in Laryngology and Bronchoesophagology

The Department of Otolaryngology, College of Medicine of the University of Illinois at the Medical Center, Chicago, will conduct a postgraduate course in Laryngology and Bronchoesophagology from September 20 to October 2, 1965. This course is limited to fifteen physicians, and will be under the direction of Paul H. Holinger, M.D.

It will be held at the new Illinois Eye and Ear Infirmary, 1855 West Taylor Street, Chicago.

Seventh National Conference on the Medical Aspects of Sports

The Seventh National Conference on the Medical Aspects of Sports, sponsored by the American Medical Association under the auspices of the AMA Committee on the Medical Aspects of Sports, will be held in Philadelphia, Pennsylvania, at the Benjamin Franklin Hotel on November 28, 1965. The Conference is held annually in conjunction with and on the first day of the Clinical Convention of the American Medical Association.

15th Hahnemann Symposium

The 15th Hahnemann Symposium, Cancer Chemotherapy: Basic and Clinical Applications, will be sponsored by the Department of Medicine, Hahnemann Medical College and Hospital, on November 22-24, 1965, at the Sheraton Hotel, Philadelphia. The primary purpose of this meeting is to consider recent developments in the basic and clinical aspects of chemotherapy of solid tumors and hematological malignancies.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Hemophilia.

X-RAY FINDINGS: The joint spaces of the knees are narrowed due to cartilage degeneration and the articular surfaces of the bones show marked cystic degeneration. There is a cloudy increase in density within the joint capsule resembling faint calcification. This is due to deposition of iron pigment from repeated hemorrhage. The ends of the bones are wider than normal due to accelerated epiphyseal growth in childhood.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

Rate: A. App. 95 Rhythm: Ventricular
(Tachycardia)

V: App. 155

PR: — QRS: .14 QT: —

ABNORMAL. P waves may be seen occurring at a slower rate and independent of the ventricular complexes. QRS is abnormally wide, rapid and regular, indicating that ventricular tachycardia is present.

COMMENT: This patient had two infarctions previously and had many episodes of symptoms due to paroxysms of ventricular tachycardia.

RESOLUTIONS



WHEREAS, God in his infinite mercy has seen fit to call from our midst Dr. Alfred Maddox, and

WHEREAS, Dr. Maddox had faithfully served his patients in the community at large throughout his many years of medical practice, and,

WHEREAS, Dr. Maddox has throughout his medical career been a leader in organized medicine, and held many distinguished positions of trust, and,

WHEREAS, Dr. Maddox has been a leader in the planning and presentation of scientific causes and meetings for the continued education of doctors of medicine, and,

WHEREAS, Dr. Maddox has always reflected the highest ideals of the medical profession, and,

WHEREAS, The Greene-Clay County Medical Society mourns his loss,

THEREFORE, be it resolved that the Greene-Clay County Medical Society in regular meeting assembled on May 12, 1965 hereby adopts these resolutions and directs that a copy be spread on the minutes of the Society and that a copy be furnished to the family, and that a copy be published by the Journal Of The Arkansas Medical Society.



OBITUARY

Dr. John Joel Monfort

Dr. J. J. Monfort, aged 60, of Batesville, a past president of the Arkansas Medical Society, died May 24, 1965. He was a native of Oklahoma and had practiced medicine in Batesville for almost 30 years. He was a captain in the Medical Corps in the Pacific during World War II. Dr. Monfort served as president of the Medical Society in 1961. He was a member of St. Paul's Episcopal Church, where he was a lay reader, vestryman and senior warden. He was a past president of the Batesville Kiwanis Club and a past division lieutenant governor. He is survived by his widow, a son, and a daughter.

Dr. Nona Bybe Ellis

Dr. N. B. Ellis of Wilson died May 30, 1965, at the age of 74. He had practiced medicine at Wilson since 1923 and had planned to retire in June 1965. A native of Kentucky, he was graduated from the University of Tennessee College of Medicine at Memphis and interned at St. Joseph Hospital in Memphis. During World War I, he served as a Captain in the Medical Corps in France and was decorated with England's Military Cross. He is survived by his widow and two sons.



PERSONAL AND NEWS ITEMS

Dr. Hall Honored

Dr. Charles W. Hall of Greenwood was honored by a public dinner sponsored by the Greenwood Chamber of Commerce in May. He was presented with a plaque at the dinner. Dr. Hall has practiced medicine for 50 years at Greenwood and has delivered between 4,000 and 5,000 babies. Dr. Hall is a member of the Fifty Year Club of the Arkansas Medical Society.

Dr. Hard Addresses Kiwanis Club

Dr. John W. Hard of Blytheville spoke at a meeting of the Blytheville Kiwanis Club in May. He discussed the Medicare Bill.

Doctors Receive Awards

Dr. John T. Herron, Dr. Edgar J. Easley and Dr. Mason G. Lawson were awarded 25-year service plaques by the Arkansas Public Health

Association in May. Dr. Herron is the state health officer; Dr. Easley is the assistant state health officer, and Dr. Lawson is the director of the Little Rock City Health Department.

Dr. Young Joins Drs. Hayes and Price

Dr. Robert Hayes and Dr. Thomas Price of Wynne announce that Dr. Hosea Young, formerly of Marianna and Little Rock, has joined them in the practice of medicine. Dr. Young is a graduate of the University of Arkansas School of Medicine.

Dr. Saltzman Assists Rotary Head

Dr. Ben Saltzman of Mountain Home served as aide to Dr. C. P. H. Teenstra of Hilversum, the Netherlands, president-elect of Rotary International, at Rotary's 56th annual convention in Atlantic City, New Jersey, from May 30 through June 3.

Dr. Hearnberger Honored

Dr. Henry Hearnberger of Stephens was honored with a surprise going-away party in May by the citizens of Stephens and near-by communities. He has practiced medicine in Stephens since 1947 and is now undertaking a year's post graduate and special study in Meninger's Clinic in Topeka, Kansas.

Dr. Guenther Addresses Meeting

Dr. John F. Guenther of Mountain Home spoke on the topic, "The Functions of the Arkansas State Medical Board", at the second quarterly meeting of the Arkansas Society of Medical Technologists in Mountain Home in May. Dr. Guenther is a member of the Arkansas State Medical Board.

Dr. Shorey Accepts Portrait

Dr. Winston K. Shorey, Dean of the University of Arkansas School of Medicine, accepted on behalf of the Medical Center, a portrait of the late Dr. Algernon Sidney Garnett. Dr. Garnett was a distinguished Hot Springs physician who died in 1919 and had practiced medicine in Arkansas for half a century. Mrs. E. S. Garnett, daughter-in-law of Dr. Garnett, presented the portrait to the Medical Center.

Searcy Physicians Attend Meeting

Dr. Porter Rodgers, Jr., from Searcy was accepted as a member of the Southwestern Surgical Conference at the 17th annual meeting of the conference in May. Dr. M. C. Hawkins, Jr., also from Searcy, sponsored one of the guest speakers, Dr. Jacob K. Berman, at the meeting.



PROCEEDINGS OF SOCIETIES

Union County

The President of the Arkansas Medical Society, Dr. C. Lewis Hyatt of Monticello, spoke to the Union County Medical Society in El Dorado in June. He discussed the Arkansas Medical Society in relation to mounting costs and added functions. He also held open forum discussion with the members about other problems which confront the State and County Medical Societies.

Pulaski County

The Pulaski County Medical Society, along with the Arkansas Dietetic Association and Arkansas Power and Light Company, sponsored a foods preparation demonstration in June for persons having the responsibility of preparing meals for diabetics.

NEW MEMBERS

DR. WILLIAM JOSEPH ROBERTS is a new member of Franklin County Medical Society. He is a native of Waldron, Arkansas, and received his pre-medical education from the University of Arkansas. He was graduated from the University of Arkansas Medical School in 1963 and he interned at Hillcrest Medical Center in Tulsa, Oklahoma. Dr. Roberts is a general practitioner and his office is at the Charleston Clinic in Charleston, Arkansas.

A new member of Lonoke County Medical Society is DR. GERALD M. SCHUMANN. A native of New York, he received his preliminary education from Columbia College in New York. He received his M.D. degree in 1933 from the Columbia University College of Physicians and Surgeons, New York. He served in the U.S. Army from 1942-1947. Dr. Schumann's office is at the Des Arc General Hospital in Des Arc, Arkansas. He is a general practitioner.

Sebastian County Medical Society announces that DR. ROARY A. MURCHESON is a new member. A native of Equality, Alabama, he received his preliminary education from the University of Alabama. He received his M.D. degree from the University of Louisville Medical School in Louisville, Kentucky, in 1928. He served in the U.S. Army Medical Corps from 1928 until 1955. From 1955 until 1964 he was the Director of Health Services at Ohio University. He is now in practice at Lavaca, Arkansas. He is a general practitioner.

DR. BROWN BROOKS has been added to the roster of members of the Jefferson County Medical Society. He was born at Memphis, Tennessee, and received his pre-med from Memphis State

University. He was graduated from the University of Tennessee Medical School in 1957 and he served his internship at Cook County Hospital in Chicago. His office address is 1421 Cherry in Pine Bluff, Arkansas. His specialty is surgery.

A new member of Pulaski County Medical Society is DR. JOHN VINES SATTERFIELD, a native of Little Rock. He received his preliminary education from the University of Arkansas and he was graduated from the University of Arkansas School of Medicine in 1958. He interned at Barnes Hospital in St. Louis, Missouri. Dr. Satterfield's specialty is thoracic surgery and his office address is 500 South University in Little Rock, Arkansas.

Pulaski County Medical Society announces that DR. CHARLES R. WINN, JR., is a new member. He was born at Little Rock and received his pre-med from the University of Arkansas. He received his M.D. degree from the University of Arkansas School of Medicine in 1954. He completed his internship at St. Vincent Infirmary in Little Rock. Dr. Winn's office address is 1009 Wolfe Street in Little Rock. He is a general practitioner.

DR. JOHN KEMP KAGY is a new member of Pulaski County Medical Society. He is a native of Van Buren, Arkansas, and received his preliminary education from Arkansas State Teacher's College at Conway. He was graduated from the University of Arkansas School of Medicine in 1963 and he interned at St. Vincent Infirmary in Little Rock. Dr. Kagy is a general practitioner and his office is located at 8609 West Markham Street in Little Rock, Arkansas.

A new member of Pulaski County Medical Society is DR. WILLIAM NELSON JONES, a native of Little Rock. He received his pre-med from Tulane University in New Orleans and was graduated from Tulane University School of Medicine in 1959. He interned at St. Louis City Hospital in St. Louis, Missouri. He served in the U.S. Army from 1963-1965. Dr. Jones' specialty is dermatology and his office address is 500 South University in Little Rock, Arkansas.



BOOK REVIEWS

PREVENTIVE MEDICINE. *Principles of Prevention in the Occurrence and Progression of Disease. Second edition* edited by Herman E. Hilleboe, M.D., Professor of Public Health Practice, Columbia University, School of Public Health and Administrative Medicine, and Granville W. Larimore, M.D., First Deputy Commissioner of Health, State of New York, Department of Health, Albany, pp 523, published by W. B. Saunders Company, Philadelphia and London, 1965.

This is an excellent text of preventive medicine. One of the excellent chapters is on accident hazards and, as is well known, this is a large cause of death and disability in industry and on the highway. There is a discussion of ionizing radiation which is of considerable interest. Air pollution is discussed. Water supply and waste disposal are well outlined. There are many other areas of interest in this book; for example, periodic health examination is reviewed, rehabilitation, dental health, obesity, etc. All in all, this is an excellent book and heartily recommended to the medical profession in general. AK

SIMPLE SPLINTING. *The Use of Light Splints and Related Conservative Therapy in Joint Diseases*, by Jerome Rotstein, M.D., Head, Rheumatic Disease Unit, Montefiore Hospital Consultant In Arthritis, Beth Abraham, New York, N.Y., pp 126, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1965.

This text is, as the title states, a description of the use of light splints in joint diseases rather than trauma. It is a very adequate text but the material is covered in other sources. This book has good illustrations and graphs. It is a simple short text. It contains an interesting chapter on the history of the treatment of arthritis. This book is recommended as a text of simple splinting, for medical diseases, not traumatic conditions. AK



Effects of Sarcoidosis on Pulmonary Function, With Particular Reference to Changes in Pulmonary Compliance

R. D. Sellers and A. A. Siebens (205 N Prospect Ave, Madison, Wis), *Amer Rev Resp Dis* 91:660 (May) 1965

Physiological studies pertaining to respiration were carried out in 16 young men with pulmonary sarcoidosis; 15 of these patients had minimal symptoms or were asymptomatic. Most measurements

of lung volume, forced ventilation, and blood gases at rest were within normal limits. Pulmonary compliance, however, was decreased to $.114 \pm 0.051$ liter/cm of water. There was a significant relationship between compliance and vital capacity, and between compliance and change in arterial oxygen tension during exercise. The data indicate that change in pulmonary elastic properties is detectable before other physiological attributes have become abnormal or subjective symptoms have become a presenting complaint.

Who's Afraid of Death on a Leukemia Ward

J. Vernick and M. Karon (National Cancer Institute, Bethesda, Md), *Amer J Dis Child* 109:393 (May) 1965

A child-centered program was initiated, based on the assumption that the most helpful way for adults to meet the emotional needs of the seriously ill child is to provide an atmosphere in which these children can feel free to express their concerns. Once such an environment had been established the staff quickly realized that most of these children had some knowledge of the seriousness of their illness and that all worried. Firm in this knowledge, the staff was able to abandon the traditional tact of "protecting" the child from worry by being secretive and as a consequence became actively involved in helping them cope with their serious concerns.

Chondrocalcinosis and Bony Changes

P. Ahlgren (Frederiksberg Hosp, Frederiksberg, Denmark), *Nord Med* 73:309-313 (April 1) 1965

Reviewing the literature on chondrocalcinosis and its clinical manifestations, the author mentions that in the American literature the condition has been referred to as pseudo-gout. He then presents nine new cases. In eight of these (seven women and one man) acute joint changes existed. In all nine patients, roentgenoscopy revealed an erosion on the distal front portion of the femur, and eight had deformed cup-shaped patellae. The literature on this pressure deformity of the femur and on the patellar deformity indicates that these lesions are of non-specific character. The calcifications of the articular cartilage and of the menisci with symptoms of acute arthritis have been observed also in association with hyperparathyroidism, and this must therefore be considered in the differential diagnosis in patients who have acute joint symptoms with calcifications.

September, 1965

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Immunological Reactions of Cultured Human Cells: Morphological and Electron Spin Resonance Studies

W. B. Dunham, M.D., F. M. Ewing, and M. V. Parker,

Kennedy VA Hospital, Memphis, Tennessee

and

W. Lohmann, and C. F. Fowler,

VA Southern Research Support Center and

Department of Physiology

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Little Rock, Arkansas

Gross changes occur in the structure of certain cultured cells when they are exposed to specific antiserum.¹ Such reactions were observed in cell cultures started nearly 7 years ago at Kennedy Hospital from normal adult human blood, the KeNAHB lines of cells.² If human tissue cells react in a comparable manner during the rejection of homografts or in autoimmune reactions, they might escape detection as the altered cells are

fragile and are destroyed on contact with formalin.

In the course of studies on antibody specificity for normal and cancer cells, cultures of KeNAHB cells were overlaid with diluted serum from rabbits that had received repeated injections of these cells. Some clumping occurred, but the most striking effect was distension of certain portions of the periphery of the cells. Approximately hemispherical cystic enlargements or balloons formed. (Fig. 1a and 1b). The smoothness of curvature indicates

*Presented in the Biophysics Seminar at the University of Arkansas Medical Center, December 18, 1964.

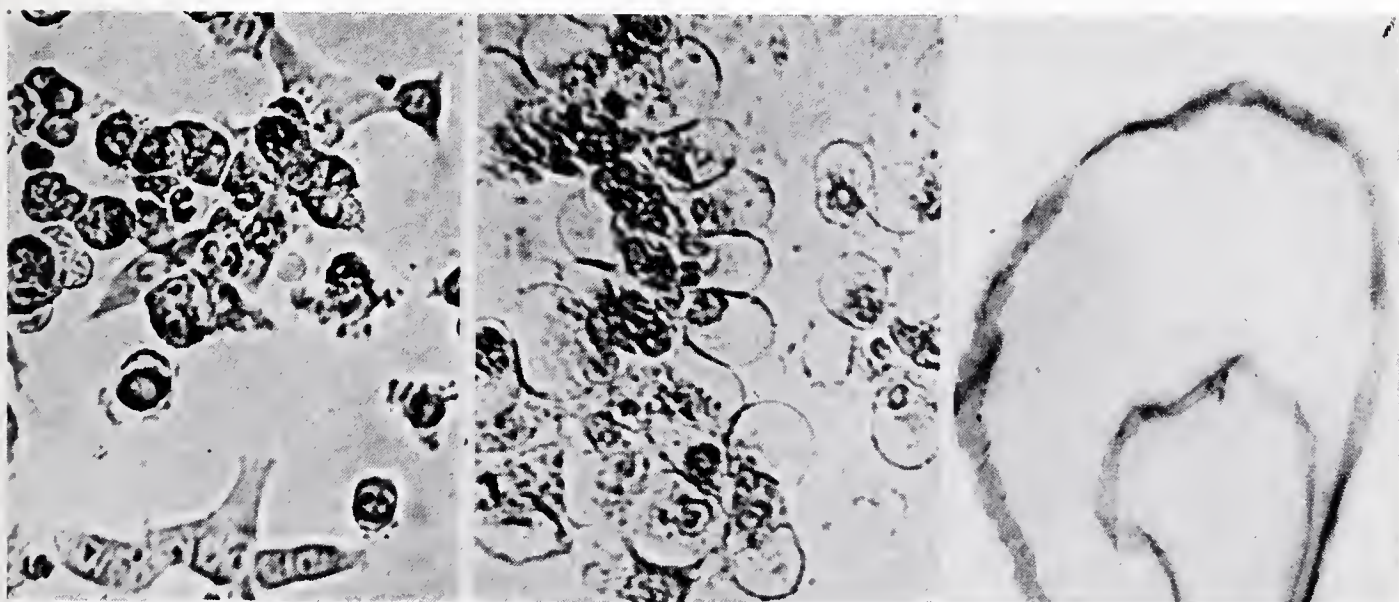


Figure 1

KeNAHB cells 4 hours after adding rabbit serum: a) control serum, X600; b) anti-KeNAHB serum, X600; c) anti-KeNAHB serum, electron micrograph of section of balloon, X15,000.

that the contents of such balloons are enclosed by an elastic membrane and are under greater pressure than the surrounding fluid. They are nearly free of microscopic particles that can be observed by either direct illumination or by phase contrast. This indicates a barrier between the balloons and the underlying cytoplasm. Such a barrier would be present if the antibodies cause an influx of water into the membrane, splitting it into an inner and outer layer. Observations with the electron microscope indicate that the external balloon membrane is not more than 40 millimicrons in thickness. (Fig. 1c).

The balloons are susceptible to damage by vibration and are instantly destroyed on contact with 95 per cent ethyl alcohol or 10 per cent formalin. These agents may make the external membrane brittle and allow it to rupture due to pressure from within the balloon. Some balloons, however, survive fixation with slowly increased concentration of ethanol to 50 per cent followed by the Papanicolaou staining procedure.

The source of the contents of the balloons remains undetermined. The cytoplasm apparently shrinks following exposure of cells to specific antibody. Water may pass outwards to form balloons, but an observable amount of crystal violet, trypan blue or chlorophyllin is not carried into balloons formed on heavily stained cells. Increased ionic concentration in the ambient fluid decreases balloon formation, but some balloons form when cells are bathed with a mixture of anti-serum and even 9 times physiologic salt solution.

Serum from rabbits before immunization does not produce ballooning; nor is it produced by anti-KeNAHB serum that has been inactivated at 56° C unless complement is subsequently added. Ballooning, therefore, as here described is caused by specific antibodies in the presence of complement.

Previous observations that copper salts interfere with the action of glycerol on cells³ prompted an inquiry into the effect of CuSO_4 on the antibody-KeNAHB cell reaction. When cells were washed with 0.01 M CuSO_4 prior to antibody addition, no ballooning occurred and there was little or no clumping. The addition of CuSO_4 after antibody treatment did not appear to affect the ballooning process, other than to make these structures unusually fragile. These results seem to indicate that there is an adsorption of cupric ions

on the cell membrane allowing the formation of a complex with the antibodies. A complex of this type could prevent antibody reactions with the cell membrane constituents or with intracellular material.

Evidence supporting such a concept was obtained using the electron spin resonance technique. A Varian V4500, 100kc electron spin resonance spectrometer was used in these measurements. The ESR spectra of lyophilized cells (controls), cells plus antiserum, cells washed with 0.01 M CuSO_4 , cells pretreated with 0.01 M CuSO_4 followed by antiserum, and cells treated with antiserum followed by CuSO_4 were determined. Spectral positions were determined with a DPPH standard ($g=2.0036$, see arrow in Fig. 2).

Although differences in peak heights were observed, all cells washed in 0.01 M CuSO_4 , exhibited the same characteristic Cu^{2+} signal. Cells treated with CuSO_4 and cells treated with antibodies followed by CuSO_4 gave the same peak height. The peak height was reduced considerably, however, when the cells were washed with CuSO_4 prior to antibody addition. In each case, extraneous or unbound Cu^{2+} ions were removed from the cells by washing with normal saline solution before antibody addition or bound cupric ion determination by ESR. Only small differences were observed in the ESR spectra of control cells and cells treated with antibodies. Since all cells

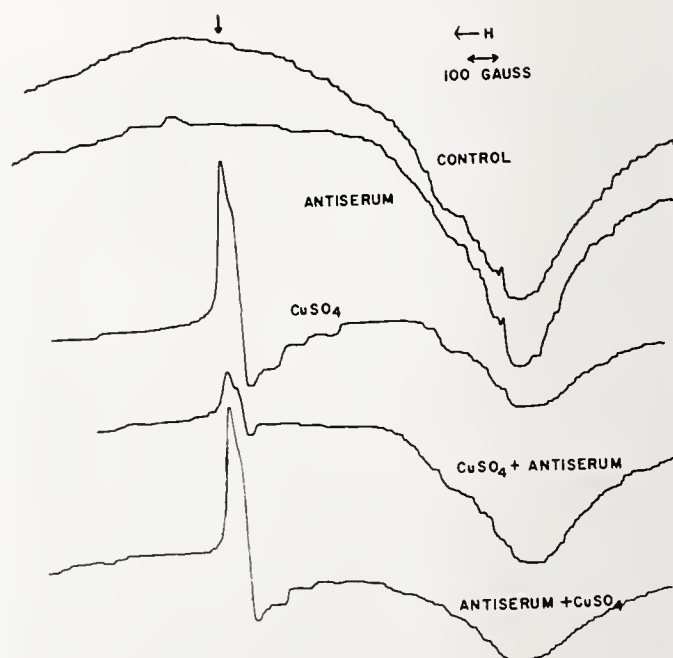


Figure 2

Electron spin resonance spectra of KeNAHB cells under different conditions.

were treated identically except for the order of component administration, the signal height reduction seems to indicate that Cu^{2+} forms a complex with the antibodies, thereby preventing the characteristic ballooning effect.

Work was supported in part by NIH Grant RHOO-197.

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Tuberculous Meningitis in Adults: Long-Term Study of 365 Patients

A. Falk (404 Mississippi River Blvd S, St. Paul)
Amer Rev Resp Dis 91:823 (June) 1965

A follow-up study of 365 male adult patients from VA hospitals treated for tuberculous meningitis in the period 1946 to 1958 was done; 85% were observed for five years or more. Survival improved markedly from 31% to 80% during this period, reflecting the change from treatment with streptomycin only to isoniazid-containing regimens. Relapse did not occur among patients treated with isoniazid. Permanent neurological residuals were present in 25% of surviving patients, of which less than half were severe. The death rate among Negroes was lower than among white patients, but neurological residuals were more frequent and more severe among Negroes. Two-thirds of the surviving patients were working or able to work. Early recognition and prompt therapy with isoniazid-containing chemotherapy regimens should result in further improvement of the survival rate from this once universally fatal disease.

Prevention of Colds by Vaccination Against a Rhinovirus

Scientific Committee on Common Cold Vaccines
(Common Cold Research Unit, Salisbury, England) *Brit Med J* 1:1344 (May 22) 1965

Experiments were carried out in adult volunteers living in isolation to determine whether a formalin inactivated vaccine, prepared in monkey kidney cultures, against a rhinovirus (HGP) prevented clinical infection with homologous virus (PK). Volunteers were challenged two weeks after the second of two intramuscular doses of vaccine. One out of 28 vaccinated volunteers had a cold compared with 11 colds in 23 unvaccinated volunteers. The vaccine did not protect against challenge with heterologous echovirus 28. The antibody resulting from vaccination persisted, as did antibody resulting from experimental infection, after 12 to 18 months. Combination of vaccine with the mineral oil adjuvant, drakerol-arlacel, or with aluminum phosphate gel, showed little promise. Aluminum phosphate, however, may be of value for concentrating and purifying antigen.

Office Procedures in Diagnosis of Diseases of Urinary Tract Infections in Pediatrics*

W. T. Rainwater, M.D., F.A.A.P.**

“Of all infectious diseases, among the most frequently undiagnosed and the most difficult to manage are pyelonephritis and related urinary tract infections.”¹ The patient who presents with typical flank pain associated with dysuria, frequency, urgency and gross pyuria presents little difficulty in the diagnosis of urinary tract infection. However, it is not at all unusual to have a child with urinary tract infection present himself to the doctor with vague symptomatology. In some instances, the only manifestation of the infection of the urinary tract is fever of undetermined origin. Even pyuria, which is considered diagnostic of urinary tract infection, frequently is absent in the very young. When pain is the presenting symptom of urinary tract infection in the infant or young child, it very frequently is localized in the abdominal region rather than being associated with the classical costovertebral angle discomfort a characteristic of the older child and adult.

The general practitioner and the pediatrician must be alert to the possibilities of urinary tract disease at all times. The protean nature of urinary tract disease in children is frequently associated with vague, poorly localized, obscure group of symptoms. Any obvious symptoms pointing directly to urinary tract infection, such as pyuria, dysuria, frequency and so forth, would certainly suggest further study of the urinary tract; however, it should be remembered that other problems frequently encountered in pediatric practice, such as failure to develop toilet training by three to four years of age, bed wetting persisting in a child after school age (particularly if this child has been trained and now reverts back to this difficulty), hypertension, fever of undetermined origin, abdominal masses, recurrent or persistent abdominal pain, persistent vaginal discharge in girls, and even failure to thrive are all reasons to suggest investigation of the urinary tract for anomalies or disease. Simple observation of a child voiding frequently will yield invaluable in-

formation as to the size and force of the stream and may lead to a diagnosis of urinary tract obstruction. Careful questioning of the parents may elicit some deviation from normal in the way in which a child voids. As in all medical diseases, a thorough history and physical examination must be done. Unfortunately, in the busy office practice, too many physicians are overlooking the possibility of infection and anomalies of the genitourinary system. I think it is done purely because most doctors consider the collection of urine and the other routine diagnostic procedures in the very young child beyond the scope of a busy daily practice routine. Nothing could be further from the truth. With a little organization, assistance from the office personnel and information acquired by a few simple laboratory tests, many urinary tract diseases can easily be isolated. The intent of this writer is to suggest some simple and yet informative diagnostic measures that can be used in the daily office practice of medicine. It is hoped that these diagnostic tests can be incorporated into the routine daily practice of every practitioner and pediatrician; and that these tests will lead to more accurate and early diagnosis thereby preventing irreversible renal disease.

The collection of the urine specimen for analysis is more difficult in younger children. The collection of a urine specimen for routine urinalysis is no problem in the older child and can frequently be obtained. There are methods for successfully collecting urine specimens for analysis in infants and young children that can easily be used in an office practice. Probably the best method of collecting a routine urinalysis in the office is through the use of disposable pediatric urine collectors which can be procured for a few cents at any of your surgical supply houses. This is a small plastic bag with a hole at one end. The opening in the bag is placed over the genitalia of the infant or young child and the edges are attached to the skin by an adhesive material about the orifice of the bag. (This disposable collector is a product of the Sterilon Corporation, Buffalo,

*Presented at 88th Annual Session, Arkansas Medical Society, Hot Springs, Arkansas, May 5, 1964.

**527 North Sixth, Blytheville, Arkansas.

New York.) The simple method of attaching a clean test tube over the penis of the male or in apposition to the urinary meatus of the female with adhesive tape has proved to be a satisfactory method of obtaining a urine specimen in the very young child. This simple measure can be modified by the use of a finger from an old rubber glove in which one end of the cut out finger is applied to the skin over the genitalia with adhesive tape, and the other end is attached to the test tube with adhesive tape. This is a little more flexible and works very well to secure a small specimen of urine for analysis. If your office nurse or aide will apply one of these devices of collection when the child is first seen, and while it is being prepared for examination, a urine specimen is usually obtained even before you as the examining physician see the child. Very rarely will a child leave the office without having obliged you with a specimen of urine for analysis. If this urine is found to be within normal limits and there is no evidence pointing to urinary tract infection, this may be all that is necessary in the urological examination of this child. However, if pyuria is found on a urinalysis and repeated collections, then catheterization or more definitive treatment may become necessary.

As has been stated, pyuria all too frequently is absent in the urinary tract infections of children, for this reason, urine cultures are considered far more reliable.³ It is rather obvious that the accuracy of the urine culture is directly related to the care and technique and the method by which it is collected. Many investigators have established the values of the so-called "midstream" or the "clean catch" specimen as compared to catheterization. It has well been accepted that voiding specimens of a male child are as good or better than catheterized specimens. To obtain this, the first portion of urine is voided and only the mid portion is collected for culture. Pryles and Stegg (2) found very little difference culturally between midstream and voided urine specimen in girls as compared with the catheterized specimen in the same group of individuals. In their series, the midstream voided specimen results correlated with the catheterized specimens in 96.5% of the cases. This midstream collection is not a difficult procedure to do and with a little care and explanation, particularly to the parent, an amazingly accurate method of urine culture may be worked out. In the older female child,

the carefully collected midstream specimen can be obtained at any doctor's office. The genitalia is gently cleansed with a little soap and water and is well rinsed before collection of the specimen. The child is instructed to assume a semi-squatting position if possible, but in any event, the labia of the vagina are retracted and the child encouraged to void. The first portion of the urine stream is voided and discarded, then the sterile receptacle is passed into the stream thus catching the midportion of the voided urine before it is removed. The sterile container (specimen bottles, etc.) can be wrapped and autoclaved and then stored in the office for use during office hours with very little inconvenience. Once the urine specimen has been obtained for culture, another important problem must be considered. Since pyuria, long known as the hallmark of urinary tract infection, may be absent in children; the culture of the urine becomes increasingly more important in this age group of patients. Urine specimens obviously cannot be obtained under as strictly sterile conditions as blood and aspirations specimens from body cavities, so the danger of contamination is ever present. For this reason, in the last decade, the colony count has become recognized and accepted as the best method for interpretation of the bacteriological growth on culture media. It is usually understood that a colony count of over 100,000 per cc of urine denotes urinary tract infection and that a count of less than 100,000 but over 10,000 is highly suggestive of infection and then the culture should be repeated. A colony count of 10,000 on culture would suggest no apparent disease of the urinary tract but, would probably be interpreted as a contamination either in the method of collection or in the plating of the culture. The pour plate method of culture and colony counting used in most hospitals admittedly is superior but is a little time consuming, rather tedious and not well adapted to routine office use. However, we are using, in our office, a short cut type of culture which has been effective or is at least a good screening test and extremely adaptable to office practice. A description of this method follows:

One-tenth cubic centimeter of the midstream specimen is taken in a sterile pipette and placed on the surface of a disposable EMB culture plate; the same amount is placed on a disposable blood agar plate and the plates are gently rocked to insure the even distribution of the urine over the

entire area. These two culture medias can be secured from your local surgical supply house for less than \$1.00. At least one laboratory (Case Laboratory) supplies a culture plate, one-half of which has blood agar and the other half of the plate contains EMB. If this divided culture plate is used, the cost of the procedure is just a little over \$0.50. These cultures are placed in an incubator overnight and read the following morning. Here again small inexpensive incubators adaptable to any doctor's office can be purchased for less than \$50.00. The following morning on arriving at the office, the doctor can quickly and grossly examine the culture plates for any growth. The total number of colonies appearing on the culture in 24 hours are counted and multiplied by 1,000. Most of the patients with urinary tract infections have growths so heavy, the counting is impossible and this is interpreted to be a colony count of over 100,000 per cc. The count definitely suggests a diagnosis of urinary tract infection. Incidentally, with very little training and a little effort, the most common organisms encountered in urinary tract infections such as *E. Coli*, *pseudomonas*, *staphylococcus* and so forth, can be grossly identified on examination of the culture plates. *E. Coli* produces a pink, reddish colony on the EMB agar. The distinctive grape odor of *pseudomonas aeruginosa* is easily interpreted, also shiny white lustrous patches of *staphylococcus* are distinctive on the blood agar. The fine beta-hemolysis and watery discreet colonies of *betahemolytic strep* are easily identified frequently by gross inspection of the blood agar plate. Slides made from the cultures and stained with gram stain further identify the bacterial flora of the culture. This bacteriological examination is very easy and extremely helpful in the future care of the patients with urinary tract infections. With very little added cost and effort, another step may be initiated either subculturing the dominant organisms on trypticase soy agar and sensitivity discs applied. Within 12 to 24 hours, the sensitivity readings are available as further guides to more accurate selection of your antibiotics for treatment of urinary tract infections. After the proper antibiotic has been selected and the patient has been on his drug for a period of time, it may be desirable to reculture the urine for (1) determination of bacteria present,² the decision of the continuation or regulation of antibiotic therapy. A culture of the urine can be secured without stopping the

antibiotic. This is done by the following method:

One cubic centimeter of a midstream urine collection is taken and placed in 5 ccs of thioglycolate media and this incubated for a period of five days. Usually, if infection is still present in the urinary tract, it will overgrow the antibiotic present in the urine, and within a period of five days, it will show a lustrous growth. This then can be plated on EMB blood agar media or plated on trypticase soy agar for sensitivity studies. One important fact to remember is that if, at any time, the antibiotic being used is discontinued for any reason during the therapy of urinary tract infections a different drug should be administered when antibiotic therapy is resumed. This is done because when an antibiotic is eliminated, the organism most likely will develop resistance to that antibiotic when it is resumed.

There also is a screening method known as uroscreen marketed by Pfizer Company, which is said to be extremely effective in following urinary tract infections. This is a reagent in a test tube to which a measured amount of urine (2 ccs) is added and the tube shaken to dissolve the reagent in the urine. This tube of urine with reagent is incubated for four hours. If there are more than 100,000 bacteria per cubic millimeter, the precipitate in the solution turns reddish pink in color. If there are less than 100,000 bacteria per cc, the solution remains colorless. We have used some of this in our practice but have not had enough experience to adequately evaluate this method and we feel that it may be worth watching in the future.

All physicians should use some type of culture technique and the method described here is extremely simple, requires very little time, can be done with a minimal cost, is accurate and certainly enhances the diagnosis. The use of culture with colony counts insure a more intelligent guide of therapy for urinary tract infections.

If you have no facilities for culturing the urine, there is still a simple way of ascertaining infection of the urinary tract. This method, too, is accurate and certainly much better than treating patients on clinical symptomatology alone. The urine is collected as for culture by the midstream portion technique. The uncentrifuged specimen is placed on a glass slide and fixed by heating over a flame. The residue is then stained with either gram stain or methylene blue and the slide is observed under oil emersion for the presence

of bacteria. Any recognizable bacteria on the slide is considered to represent bacteruria. Bacteruria discovered in this particular method has been correlated with the colony count and found to be accurate.⁴ On one series, 98% of the patients who had gross bacteruria had a colony count of over 100,000 per cubic centimeter when the comparative culture studies were done.⁵ The microscopic examination should be done only on a fresh specimen. In any event, if the urine is collected and allowed to stand for any time at all, it should be kept under refrigeration until staining can be done and this should be done as soon as possible. The slide can be made, flamed and then await staining. On an outpatient basis, the parent can be given a sterile container and a midstream urine culture done at home and stored in the refrigerator for up to 12 hours and the slide can be made in the office the next morning. When any infection has been diagnosed in the male and when a second or certainly third diagnosis of infection has been made in the female, intravenous pyelograms should be secured.

The intravenous pyelogram should be secured for many of the other vague symptoms which have been associated with urinary tract anomalies and infections mentioned before. The intravenous pyelogram also helps determine the function of the kidney by how well it fills, how rapidly the dye is visualized, and how well the dye is concentrated in the kidneys. In addition to securing the routine intravenous pyelogram, let me suggest one further diagnostic procedure in this series. Be sure to secure a post voiding film, specifically looking for residual urine in the bladder. Normally, almost all the dye is voided from the bladder immediately after the intravenous pyelogram has been secured and the patient is allowed to void; thus, a large amount of residual dye in the bladder would be diagnostic of obstruction. Any equivocal amount would suggest further urological diagnostic procedures and would necessitate referral to a urologist for cystoscopic and more specialized examinations. A normal IVP with a normal post voiding clearing of dye, coupled with a normal colony count and/or no bacteruria on slide would certainly suggest the patient was free of any serious significant disease of the urinary tract. If the intravenous pyelogram is questionable, or if the patient persists with the pyuria or positive culture of the urine, immediate examination by the urologist is indicated.

Many investigators such as Cordonnier⁴ and Thompson⁵ do not believe that infection occurs without urinary tract obstruction and urinary stasis being present. The general practitioner and pediatrician must remain alert to the fact that this obstruction may be as simple as a meatal stenosis. There are two types of meatal stenosis,¹ rather severe congenital stenotic meatus,² the more frequently acquired stenosis which is usually secondary to an infection around the meatal area. In the circumcised infant, small ulcerations on the penis are frequently seen in the pediatric age group. These infections command prompt attention by the physician who sees them. The child with the lesion of the meatus should be followed after the infection has healed to be sure that there is no scarring and resulting secondary obstruction. This scarring and obstruction could gradually produce further infections, these progressing to irreversible renal damage. These lesions can be handled very easily in the office and should be cared for by the general practitioner or pediatrician. Sometimes, dilatation and an occasional meatotomy is indicated. Female infants frequently have adherence of labia which can lead to obstruction of urinary outlet resulting in urinary tract infection and vaginal infection. This condition should be searched for at each examination and corrected by the physician following these children. It should also be remembered that any anomaly of the external genitalia, such as meatal stenosis, hypospadias, cryptorchidism and so forth, should alert the examining physician to the possibility of other anomalies of the GU tract. One-third of the patients with anomalies of the external genitalia have been found to have other anomalies of the genitourinary tract.

The practitioner and pediatrician have the golden opportunity in their daily practice to prevent many of the well known kidney diseases and deformities through careful investigation and the treatment of minimal findings of urological disease during childhood. For this reason, the responsibility rests greatly on their shoulders for the diagnosis of obstructive uropathy and the associated infections. Remembering that pyuria is not always present, coupled with a high index of suspicion for infections in the genitourinary tract, and motivated by his responsibility to his patients; the alert doctor should institute all the diagnostic measures available to him in his daily practice. The physicians should also be very

quick to refer any irregularity of the urinary tract discovered in his office by the above mentioned procedures to the urologist in his community. As a medical team, the general practitioner, the pediatrician and the urologist move forward together to combat the too frequent, undiagnosed urinary tract infections.

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**Pulmonary Muscular Hyperplasia**

D. J. Sheft and H. Moskowitz (Jefferson Medical College Hosp, Philadelphia), *Amer J Roentgen* 93:836-849 (April) 1965

Eleven patients are reported with pulmonary muscular hyperplasia, a progressively fatal disease of unknown etiology which is characterized by the presence of a marked proliferation of smooth muscle elements in the lung and the development of microcysts. Impaired oxygen exchange is the physiologic result of the pathologic changes. The development of carcinoma of the lung was strikingly high in the series. The radiologist should be aware of this entity and include it in the differential diagnosis of progressive interstitial fibrosis.

Antazoline in Cardiac Arrhythmias

I. Christiansen, N. I. Nissen, and A. C. Thomsen (Blegdamshospitalet, Copenhagen), *Nord Med* 73:315-317 (April 1) 1965

Complications were noted in five of seven patients who were treated for cardiac arrhythmias with from 200 to 400 mg of antazoline (given intravenously in 50 mg doses over four minutes). Ventricular fibrillation and ventricular tachycardia were observed in two patients with atrial fibrillation; bundle-branch block in three patients; second degree atrioventricular block in one patient; and increased tachycardia with depression of ST in leads II and III in one patient. All these com-

plications proved reversible within a few hours, either spontaneously or in response to treatment. The antazoline treatment achieved a lasting beneficial effect in only one of the patients. Complications, especially of atrial fibrillation and flutter, seem to be more frequent during intravenous antazoline treatment than is stated in the literature, and the authors feel that oral administration is probably preferable.

Plasma-Cortisol Levels in East African Subjects

P. J. Leonard (Makerere University College, Kampala, Uganda), *Lancet* 1:845-846 (April 17) 1965

It had been demonstrated by Allbrook in 1956 that the adrenal glands of East African males were smaller than those of North American subjects of European extraction and that the difference was due to the smaller weight of the cortex. He suggested that this indicated hypofunction of the gland. Other reports are cited which also suggest a decreased activity of adrenal cortex in a fair proportion of African male adults. Cortisol represents about 70% of the total adrenal steroid output in man. The plasma level of cortisol and the binding of cortisol by the plasma proteins were measured in healthy East African males. The plasma levels of both total and free steroid were similar to those found in healthy subjects elsewhere. It was concluded that African male adults do not have hypofunction of the adrenal glands.

Planning and Evaluating Patient Care on Interdisciplinary Health Team

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Social demands for health services and social programs for health services predispose the existence of a coordinated, efficient and therapeutic health team; the members of which are dedicated to the welfare of society. The composition of the team is governed by the health needs of individuals or groups and the degree to which the individual or group is dependent upon others for assistance in meeting their health needs. The paradox is that the health team, defined so clearly in the literature of the various professions and in social legislation appears to be, in reality, a many splintered thing. For all too frequently the services provided are fragmented and at present give little evidence of a coordinated plan.

Health and welfare agencies appear to be in competition for clientele or in other instances to block services. For as health services were expanded, there has been an associated expansion of institutions and organizations for these services. Concomitantly, this age of technology, of big business, of organized social services requires the services of increasing numbers of professionals. Is the major problem in a coordinated plan of health services that of the status of the various professionals involved? Is the underlying issue that of the prerogatives of the various professionals? Traditionally, the physician has been the authority in matters of health, disease, and disability. Can this other occupational health group in the health field be considered a profession in its own right, with a distinctive function to perform, when in certain areas of practice the particular occupational group is viewed as sub-professional to another profession? The analogy is fundamental in the clarification of identification of nursing and other related health groups in relation to the medical profession.

It is my premise that mental health—psychiatric overtones are prevalent in the role relationships of members of the health team; theories and concepts basic to understanding of mental disorders and disability of individuals might well be ap-

plied to a study of the various professions. Why is it that we have failed in our social interactions? Granted, individually and collectively, we can take pride in evidence of services rendered but would these same services be enhanced if we concentrated upon the inter relatedness of our various roles? In effective team operations, roles are blurred at times and at other times quite distinct. The purist may not accept this assumption but in today's world we are all too frequently faced with the availability of various workers. This is certainly true in the mental health psychiatric setting.

The members of the health team then must take the initiative in assuring that planning undergirds care and evaluation of the care is a continuous process.

In my orientation as a nurse with my experiences primarily in hospitals and in the study of hospitals, I hypothesize that the effectiveness of the health team in planning, providing, and evaluating safe, efficient and therapeutic services is affected by forces and factors in the institutional setting, as well as by the availability and potential of the members for the quality service.

Inherent in any psychiatric setting are three distinct areas of service:

1. Patient and family services
2. Personnel services
3. Institutional services

These services might be further clarified as therapeutic or non-therapeutic services. A distinctive feature of any therapist's role is that this role expands or contracts, depending upon the availability and useability of allied health or institutional service personnel. If problems associated with the shortage of personnel and effectiveness of personnel were evaluated on the basis of these three services, we might arrive at quite different solutions for our problems. We must be concerned with the use of talent for patient care.

The therapeutic milieu has a broader meaning than that for improved, known measures. Simple

measures can be introduced which will free the potential talent now immersed in the clutter of paper and things.

Why am I stressing the environment first? Because responses to need for planning and evaluation are "that we don't have time!" We must find the time and the professional must be aware of the responsibility to effect changes in the environment.

Temple Burling, et al., in "The Give and Take in Hospitals" clarify team relationships in the following statement:

"The hospital, despite its emphasis upon specialized techniques and equipment is basically an organization of human beings. Many professions and occupations are brought together in a single place to focus their skills in the general goal of patient care. The scientific excellence of modern medicine can be brought to bear in patient needs only if the human agents are in flexible and creative relationships with one another and with the patient. Medical treatment is not automatic or routine, but a delicately balanced, cooperative achievement."

If we are to achieve this delicately balanced, cooperative achievement, concerted effort must be brought to bear upon communications among the various disciplines. Since the nurse has traditionally assumed the role of coordinator of patient care services, the need for multidisciplinary planning and evaluation may appear more acute to the nurse. My experience for many years with team nursing in numerous situations has demonstrated the value of certain approaches in assuring continuity of services:

1. There is a universal body of knowledge for all members of the health team.
2. Knowledge has a filtering process from resources to the general public.
3. The patient and family expect that all workers have this knowledge.
4. It is in the synthesis of this knowledge and

the application of this knowledge that distinguishes the functions of the various members of the health team.

5. The contributions of the various members may vary with the members assuming more or less active roles, depending upon the response of the patient or complexity of his problem.
6. The patient's response to illness and disability is influenced by many factors; the participation of the members of the health team is dependent upon this individual response.
7. Functions of individual members are interdependent, as well as independent.
8. The approach is always that of identification of the patient's needs and problems and identification of the knowledge, judgment, and skill essential for meeting these needs.
9. Just as there is a hard core of knowledge or service basic to effective function, so are there certain skills: (a) Problem Solving, (b) Communication, and (c) Human Relation.

The continued achievement of management standards of patient care in the preventive, curative and restorative aspects of illness and the attainment of enhanced health for the general public depends materially upon an harmonious, collaborative relationship between physicians and other members of the health team. Since a relationship depends upon free communication, I would hope that in some future conference the emphasis might be upon:

1. To identify new or continuing areas for study made necessary by changing patterns of practice.
2. To consider together the impact of changing patterns of practice on the relationships of the various members of the health team.

We have all been guilty of appraisal of our roles in isolation. If we continue to do so, we remain at an adolescent level of development. Professional maturity for the health team will be assured when interdependence is accepted as our goal.

Report on Actions of the House of Delegates

AMERICAN MEDICAL ASSOCIATION

114th ANNUAL CONVENTION

JUNE 20-24, 1965

NEW YORK CITY

NEW YORK, June 24—Federal health care legislation, the report of the President's Commission on Heart Disease, Cancer and Stroke, The Gunderson Committee report on organization of the House of Delegates and a plan for a new method of establishing AMA scientific sections were among the major subjects acted upon by the House of Delegates at the American Medical Association's 114th Annual Convention held June 20-24 in New York City.

Dr. Charles L. Hudson of Cleveland, Ohio, a member of the AMA Board of Trustees since 1961, was named President-Elect of the Association. He will take office as the 121st AMA President in June, 1966, succeeding Dr. James Z. Appel of Lancaster, Pa., who was inaugurated at the Sunday opening session of the House at the New York convention.

The 1965 AMA Distinguished Service Award was won by Dr. Tinsley R. Harrison of Birmingham, Ala., for his outstanding work in the field of cardiovascular diseases.

Final registration figures reached a grand total of 64,517, including 24,268 physicians, the largest physician registration in the Association's history.

Health Care Legislation

Most controversial issue before the House was that of nonparticipation under any so-called "Medicare" law that might be passed by Congress. This subject came up in various ways in nine resolutions and in portions of Dr. Appel's inaugural address.

The House recommended that "*the members of the American Medical Association be reminded that it is each individual physician's obligation to decide for himself whether the conditions of a case for which he is about to accept responsibility permit him to provide his own highest quality of medical care.*"

In adopting a substitute resolution, the House declared that "*the physicians of the United States*

of America pledge themselves to continue their search and activity, in whatever social environment may develop, to secure or to restore the freedom, high quality and availability of medical care which has been traditional in our country.

"When the fate of the pending medicare legislation is determined, this House will review, in special session if necessary, the effect of the law and take whatever action is deemed necessary.

"In keeping with the testimony before your Committee, and the expressed policies of this House, this action should in *no way* be interpreted as a change in Section 6 of the "Principles of Ethics" of the American Medical Association which plainly states: "A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration of the quality of medical care"; and that this House of Delegates reaffirm the principles of the Bauer amendment adopted in 1961.

"The House of Delegates' reaffirm the nine principles for standards of health care programs as adopted by the House of Delegates in its special meeting February 7, 1965, and amended to read as follows:

- '(1) No person needing health care shall be denied such care because of the inability to pay for it.
- '(2) It is appropriate that government revenues be used to finance health care when other resources have been found to be inadequate.
- '(3) Every level of government, municipal, county, state and federal, should assume a responsible share in the financing of such programs.
- '(4) The health care provided by such programs should be adequate and should be equal to that available to those who can afford to pay.

- '(5) Maximum use should be made of voluntary prepayment and insurance mechanisms.
- '(6) Administration of such program should be the responsibility of the state government. Participating states should be required to meet adequate standards of administration in order to qualify for federal funds.
- '(7) Eligibility requirements for benefits should be fair, realistic, uncomplicated and practical.
- '(9) Any such health care programs should provide funds only, and not direct services.
- '(9) Funds for such programs may come from general tax revenues and not from social security taxes.' "

Offer to President Johnson

In a related action, urging that government seek the advice of the medical profession on health legislation, the House adopted a resolution which included the following statements:

"This House of Delegates restate its offer to meet with the President of the United States through our Legislative Task Force to discuss proposed medical care legislation with a view to safeguarding the continued provision of the highest quality and availability of medical care to the people of the United States.

"The House of Delegates of the American Medical Association instruct the Board of Trustees of the American Medical Association to embark immediately on an active campaign to inform the membership of the American Medical Association of the grave considerations in adhering to our principles of ethics posed by legislation now pending before Congress.

"The American Medical Association strongly urge those branches of the government interested in the formulation, the enactment, and the implementation of laws which deal with the provision of professional medical services to the public to seek and utilize the advice and assistance of the physicians who will render such services. Such advice and assistance should be received through our chosen representatives, the officers of the American Medical Association.

"The American Medical Association intensify its efforts to modify all such pertinent legislation, employing the necessary means and appropriate actions to the end that the health of the public and the pursuit of excellence in medicine be unimpaired by such legislation.

"The American Medical Association make every effort to continue, and where necessary, to expand

its communication activities so that all physicians as members of component medical societies will be promptly, continuously and completely informed of developments in this critical area during the coming months."

The DeBakey Commission Report

In considering seven resolutions involving the report and recommendations of the President's Commission on Heart Disease, Cancer and Stroke, the House adopted a substitute statement which resolved that:

"The American Medical Association point with pride to the immense strides made in the approaches to the conquest of heart disease, cancer, and stroke under existing patterns of research and medical practice; strongly favoring the use of available financial support for extension of these patterns rather than replacement by a complex of medical control centers and satellites.

"The American Medical Association oppose those particular Commission recommendations which call for and have stimulated proposals for hastily contrived and unproven sweeping changes in the pattern of medical research, education, and patient care.

"The component state medical associations be urged to conduct conferences with medical educators and scientists, medical staffs of hospitals, medical society representatives, and other interested parties, for the purpose of exchanging information and for the development of such recommendations as may be appropriate for the continued improvement of medical education, research and patient care.

"The state medical associations be urged to report findings and recommendations resulting from these conferences to the AMA Board of Trustees, for the information of the Board, its councils, and the Association members."

The Gundersen Committee

Action on the Gundersen Committee report reviewing the size, make-up and functions of the House of Delegates was postponed until the 1965 Clinical Convention in Philadelphia.

The House adopted a reference committee report saying:

"It was apparent that if the organization of the House of Delegates of the American Medical Association, which is of paramount importance to the efficient and productive operation of the Association, is to be thoroughly studied by the delegates, more time will be required."

The Gundersen Committee was appointed an

ad hoc unit at the directive of the AMA House in June, 1963. The committee, which is chaired by Gunnar Gundersen, MD, La Crosse, Wis., a past president of the AMA, brought in an extensive 35-page report.

The committee pointed out that certain aspects of its work were unfinished, particularly those dealing with the function of the AMA scientific sections. The AMA House action recommended that the committee continue its study of scientific sections.

Organization of a New Section

In a report to the Board of Trustees, the Council on Postgraduate Programs affirmed its belief that the establishment of a new section is an important change in the AMA structure, and submitted a procedure for evaluating the qualifications for a new section and the scientific programs of all sections.

In brief, this procedure provides that (1) the group requesting formation of a new section submit to the Executive Vice President a written request for approval; (2) the request be transmitted by the Board to the Council on Postgraduate Programs for evaluation of the petition; (3) if approved by the Council, a mandatory trial period of two years as presently in effect be provided under the auspices of the Council; and (4) after such trial period, a recommendation for acceptance or denial of the petition for the establishment of a section be made to the Board.

The House approved the recommendation, with certain word changes, and suggested that it be sent first to the Gundersen Committee and then to the appropriate AMA council for consideration.

Miscellaneous Actions

In dealing with 73 resolutions and numerous reports from councils, committees and the Board of Trustees, the House of Delegates also:

Urged medical schools and agencies concerned with continuing education to incorporate "appropriate learning experiences" for physicians in counseling relating to sexual attitudes and behavior.

Agreed that hospital medical staffs and state and component medical societies be urged to encourage the establishment, maintenance, and proper use of cancer registries in hospitals, but that the establishment of such registries should not be made a requirement for accreditation by the Joint Commission on the Accreditation of Hospitals.

Instructed the Council on Medical Service and

its Committee on Federal Medical Services to "remain alert to any deviations from policies of the Veterans Administration concerning the provision of drugs to veterans treated by private physicians, and to meet with pharmacy representatives so that the basic principle of freedom of choice" of pharmacists be maintained.

Referred to the Board of Trustees a resolution calling for the AMA to caution the public against discontinuing voluntary health insurance policies and prepayment plans for persons over 65 in "anticipation of pending legislation."

Reaffirmed its policy concerning the practice of radiology, pathology, anaesthesiology and physical medicine in hospitals.

Reaffirmed AMA policy that human blood, as living tissue, should not be purchased under insurance contracts. It was recognized that exceptions may be necessary when there is need for unusually large numbers of transfusions, or whenever volunteer blood donors are not available.

Urged state and local medical societies to encourage the development of the Explorer Scout Program for Medical Specialty Posts and noted that about 150 of the 21,000 Explorer Scout posts in the country are directly related to health.

Adopted a resolution calling for continued efforts to secure the passage of legislation "which will remove tax discrimination against professional people, specifically HR 10 (Keogh) and HR 697 (Weltner), but turned down recommendations that the AMA encourage its members to proceed at the state and county levels with the formation of corporations for the purpose of implementing an "organized effort in the courts to remove tax discrimination."

Directed the Board to review the subject of federal assistance for operating expenses for health or medical education facilities.

Directed the Board to study the opportunities and problems associated with Operation Head Start and other programs now operating or planned under the Economic Opportunity Act.

Referred to the Board for Study a resolution calling for "a program of purchase of health insurance . . . in every state, subsidy for which shall be by federal-state participation," under which "extension of coverage shall be to all needy persons regardless of age."

Also referred to the Board for consideration and appropriate action a 10-point legislative program outlined by the Minnesota delegation.

House of Delegates received a series of resolutions urging approval of American Board of Family Practice. All were referred to the Council on medical education.

Urged the Council on medical education to establish a standard date of appointment for all approved residency training programs.

Encouraged state and county medical societies to participate in the formation of State Associations of the Professions, "to provide a vehicle, for interprofessional cooperation in those areas where united activity of the various professions can be of great benefit."

Amended the bylaws to provide that the vice president shall succeed to the presidency should the president die, resign or be removed from office.

Accepted a Board of Trustees report stating that it had referred to the joint AMA-American Bar Association committee a previously introduced resolution designed to present a grievance against alleged abuse of legal processes, characterized in the resolution as "vexatious litigation."

Election of Officers

Dr. Hudson's unexpired term on AMA's Board of Trustees will be filled by Dr. Irvin E. Hendryson, Denver, Colo. Dr. Hendryson will serve until 1967.

Re-elected to the Board for three-year terms were: Drs. Lester D. Bibler, Indianapolis; J. B. Copeland, Austin, Texas; Gerald D. Dorman, New York; L. O. Simenstad, Osceola, Wisc.

W. Andrew Bunten, M.D., Cheyenne, Wyo., was elected to a one-year term as the Association's vice president.

Dr. Milford O. Rouse of Dallas, Texas, was re-elected Speaker of the House of Delegates, and Dr. Walter C. Bornemeier of Chicago was re-elected Vice Speaker.

Elected to the Council on Medical Education were Dr. Bland W. Cannon of Memphis, Tenn.; Dr. William R. Willard of Lexington, Ky. (to succeed himself) and Dr. Earle M. Chapman of Boston, Mass.

Named to the Council on Medical Service were Dr. C. A. Hoffman of Huntington, W. Va., and Dr. Russell B. Roth of Erie, Pa., who was re-elected unanimously. Dr. George D. Johnson of Spartanburg, S. C., member of the Council on Constitution and Bylaws, was also re-elected unanimously.

Dr. James H. Berge of Seattle, Wash., was named to succeed himself on the Judicial Council.

JAMES M. KOLB, SR., *Delegate*.



Arteriosclerosis in Wild Animal Species: Problems and Results of Comparative Research in Arteriosclerosis

W. Grünberg (Tierärztliche Hochschule, Linke Bahngasse, Wien, Austria), *Klin Wschr* 43:479-488 (May 1) 1965

For the purpose of comparative investigation, the author defines arteriosclerosis as a collective term for various pathological changes in the vascular wall, which lead to hardening and functional impairment. He cites literature reports to the effect that degenerative arteriopathy can be found among nearly all classes of vertebrates. The evolutionary continuity in structure and metabolism of blood vessels facilitates comparative studies. In spite of a relatively primitive circulatory system

in fishes, these vertebrates occasionally exhibit intima plaques that contain lipids. In reptiles degenerative changes of the elastic fibers with calcium deposits predominate, but atheromas are also observed. Arteriosclerotic lesions are frequent in different species of birds. The fully developed picture of avian arteriosclerosis closely resembles that in human subjects. Lesions which morphologically resemble the early stages of human arteriosclerosis are found in such mammals as primates, whales, and pigs. Arteriosclerosis in animals usually is restricted to the central portion of the systemic circulation and rarely is as extensive as in human subjects. For this reason, the complications of human arteriosclerosis are almost nonexistent in animals. Heredity seems to play an important role in arteriosclerosis.



STUDIES FROM —
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor and Chairman
STEWART FISH, M.D., Editor

Persistent Abnormal Lactation and Amenorrhea*

C. Armitage Harper, Jr., M.D.

Persistent abnormal lactation and amenorrhea constitute an uncommon but interesting syndrome. The symptoms are manifestations of an internal hormonal imbalance which has become more thoroughly understood during the past two decades. The purpose of this essay is to review the suspected causes of this condition, and to postulate a possible etiologic interrelationship between these various factors. Three illustrative case histories are presented.

The first reference to this symptom complex was recorded in a series of essays by Chiari concerning his observations upon obstetric and gynecologic patients in a Vienna clinic during the years 1848 through 1855.¹ He reported two cases of persistent lactation and amenorrhea in puerperal women who had discontinued nursing. In his brief description of the syndrome, he noted atrophy of the uterus, cervix and vagina, excessive weight gain and generalized vague abdominal pain. He attributed this condition to the nutritional state and poor general health of the patients.

The clinical importance of this syndrome was not recognized until 1887 when Frommel² described a similar case in his essay "Ueber puerperal atrophie des uterus." In his review of three thousand gynecologic patients, he found 28 patients who demonstrated uterine atrophy of various types. He noted that these women did not seek medical attention because of their amenorrhea, but because of numerous other non-specific complaints. The patients were depressed, complained of abdominal pain, backache, movements

in the abdomen and various hysterical symptoms. Of these 28 women demonstrating utero-ovarian atrophy, Frommel observed one woman 28 years of age, who had continued to lactate profusely although her last pregnancy had been terminated 18 months prior to examination. She had discontinued breast feeding 3 months following delivery and had been amenorrheic for over a year. He postulated that this persistent lactation and genital atrophy was secondary to frequent pregnancies in association with malnutrition. His proposed therapy was non-specific and he suggested immediate cessation of breast feeding as soon as signs of the condition began to appear.

In reviewing the literature on this subject in 1935 Sharp¹ delineated the three salient features of the syndrome as persistent abnormal lactation, amenorrhea and genital atrophy occurring in the puerperal period. He designated this condition Frommel's disease since he felt Frommel had provided the first thorough description of the syndrome. Since that time this triad of symptomatology has been variously designated under the names of Chiari and Frommel, combined or separately. Sharp believed that the condition was probably secondary to a pituitary hormonal imbalance, but was unable to pursue this postulate further, since he had neither patients nor hormonal assay techniques available to fully support his thesis.

Since Sharp published his paper, many reports have appeared in the medical literature describing patients with this syndrome as well as several review articles. The physical findings and symptoms noted by Chiari and Frommel have since

been confirmed. The majority of women presenting with this syndrome have been found to be primagravida between the ages of 17 and 35. Endocrine assays have revealed low to normal levels of pituitary gonadotrophins, normal 17 ketosteroids and a low to normal protein bound iodine. Treatment has generally been unsatisfactory. Spontaneous remissions have been observed. Potter³ reported a spontaneous remission of the condition after a seven year history of amenorrhea and galactorrhea.

Ovarian hormones have been used in the treatment of this condition, but generally without success.^{4,5} Two patients treated with estrogens however had remission of their symptoms.^{6,7} Chorionic gonadotrophin has been used without success.⁴ Pituitary irradiation has caused cessation of lactation.⁸ Ashkar⁹ reports an instance of cessation of lactation, return of normal menses and subsequent pregnancy following roentgen pituitary stimulation.

A syndrome with the same symptomatology but not associated with pregnancy was first reported by Ahumada and del Castillo¹⁰ in 1932. Argonz and del Castillo¹⁰ and Forbes et al¹¹ in 1953, reported 4 and 15 patients respectively who had this syndrome. Nine of the patients reported by Forbes were nulliparous. Two of these 9 had pseudocyesis. Eight of the 15 had pituitary tumors demonstrated radiographically. Three patients had pituitary biopsies and were found to have chromophobe adenomas. These patients had the complaints noted in the patients with the Chiari-Frommel syndrome, as well as the physical and chemical changes. Characteristically these women all have low serum pituitary gonadotrophins. Rabau¹² reported three additional patients demonstrating this symptom complex in 1961, two of whom had radiographic evidence of a pituitary tumor. Ahumada postulates that this syndrome is related to hyperfunction of the eosinophilic cells of the anterior lobe of the pituitary gland. Forbes postulates that the chromophobe adenoma either produces prolactin or interferes with the hormonal secretion which normally inhibits lactation. He also suggests that the cells of a chromophobe adenoma are pre-eosinophilic in character. There is some experimental evidence in laboratory animals to support this hypothesis.¹³ Neither of these authors suggested an effective form of therapy.

Galactorrhea and amenorrhea have been asso-

ciated with various types of pituitary tumors. Chromophobe adenomas seem to be most commonly associated with these symptoms.^{4,14,15,16} All of the patients reported by Forbes¹¹ who underwent brain surgery were found to have chromophobe adenomas. Pituitary irradiation or surgical extirpation seem to be the only effective forms of therapy. Several patients presenting with symptoms of the Chiari-Frommel syndrome, including onset of symptomatology in the puerperal period have been found to have pituitary tumors radiographically.^{4,5,15,16,17,18} Therefore, the conclusion that a patient has the Chiari-Frommel syndrome without a pituitary tumor is not justified simply because the symptoms had their onset following parturition. Cranio-pharyngiomas^{19,20,21} also have been associated with these symptoms. However, in patients with cranio-pharyngiomas, papilledema and visual defects of a moderate to marked degree are generally demonstrable. Patients with acromegaly^{5,22,23} and Cushing's syndrome^{24,25} have also been reported to demonstrate amenorrhea and galactorrhea in addition to the symptoms of their primary disease. Davidoff²³ in a review of a large series of acromegalic patients noted amenorrhea in 73 percent while 4 percent demonstrated amenorrhea and galactorrhea. Therapy for these patients has been the accepted treatment for the primary condition. Following pituitary irradiation or surgical extirpation of the adenoma, lactation has stopped but menses rarely returns to normal.

Various other conditions have been reported as etiological factors in this syndrome complex (Table 1). These can generally be divided into the following categories: 1) Factors affecting the body hormonal balance. 2) Conditions related to the central nervous system. 3) Persistent stimulation of the afferent nerves from the breast. 4) Exogenous drug preparations.

Case Reports: The following patients have recently been seen at the University Medical Center and demonstrate three different causes of persistent abnormal lactation with or without amenorrhea.

Case 1.

S.H., a 39-year-old, gravida 1, para 1, Negro female was seen in the emergency room of the University of Arkansas Medical Center in July, 1963 complaining of amenorrhea and a progressively enlarging abdomen. A history of persistent lactation since the birth of her only child at age

19 was elicited. She had been amenorrheic since March, 1949. She complained of a 50 lb. weight gain, movements in her abdomen, nervousness, lethargy, decreased libido and recurrent left sided headaches. She had noted swelling of her hands and feet although her shoe size had not changed. She had had a normal spontaneous delivery of an eight pound male infant in 1943. The infant died of respiratory difficulty at the age of five months. Otherwise, her past history and family history were non-contributory.

The patient was obese. There was no hirsutism. The breasts were large and pendulous but not en-

gorged or tender. There were no palpable breast masses. A thin, milky secretion could be expressed from both breasts with ease. Bimanual pelvic examination revealed the uterus to be small, midline and freely movable. The remainder of the physical examination was within normal limits.

Diagnostic studies were reported as follows: Endometrial biopsy revealed atrophic endometrium and the vaginal smear was hypoestrogenic. Urinary estrone, estradiol and pituitary gonadotrophin levels were normal. The patient failed to menstruate following administration of 100 mg. of progesterone in oil intramuscularly. The skull films and visual fields were normal. The glucose tolerance test was normal. The serum calcium was 8.8 mg. percent. The serum phosphorus was 4.6 mg. percent and the serum cholesterol was 275 mg. percent. The VDRL was negative. The protein bound iodine was 4.0 mcg. percent. The radioactive iodine uptake rate was $10^3k_1=0.55^*$ with a 24 hour uptake of 10.7 percent. Following tapazole therapy, the radioactive iodine uptake rate increased to $10^3k_1=0.88$ with a 24 hour uptake of 14.9 percent. Following administration of ten units of thyrotropic hormone, the radioactive iodine uptake rate rose to $10^3k_1=3.36$, indicating a deficiency of thyroid stimulating hormone. The ketosteroids were 18.6 and 21.8 mg. in 24 hours on two occasions. Concomitantly, the 17 hydroxycorticoids were 6.7 mg. and 7.7 mg. in 24 hours. These values rose to 35.7 and 30.1 mg. during the 24 hours following the administration of metapirone for three days.

The patient improved somewhat symptomatically after being placed on one grain of desiccated thyroid daily although she continued to lactate and remained amenorrheic. Her nervousness decreased; she began to lose weight, and her abdominal pain subsided. She has otherwise remained unchanged since first seen.

Case 2.

S. L., a 28 year gravida 10, para 7, abortions 3, white female was referred to the gynecological service in February, 1964, complaining of postpartum amenorrhea and galactorrhea since the birth of her last child in May, 1963. This pregnancy terminated with the onset of premature labor following a grand mal epileptic seizure during which she suffered third degree burns to her thorax, arms and neck. These burns had subse-

*Normal range for women of this age at U.A.M.C. is .83 to 3.4.

TABLE I
CONDITIONS ASSOCIATED WITH
GALACTORRHEA

1. Physiologic Postpartum Lactation
2. Chiari-Frommel Syndrome
3. Ahumada-del Castillo Syndrome
4. Pituitary Tumors and Other Brain Tumors
 - A) Forbes-Albright Syndrome (Chromophobe Adenoma)
 - B) Acromegaly (Eosinophilic Adenoma)
 - C) Cushings Syndrome (Basophilic Adenoma)
 - D) Craniopharyngioma
 - E) Pineal Psammosarcoma
5. Other Conditions Related to the Central Nervous System
 - A) Postencephalitic Parkinsonism
 - B) Encephalitis
 - C) Pseudocystitis
 - D) Hydrocephalus
 - E) Pseudotumor Cerebri
 - F) Pneumoencephalography
6. Local Factors of Etiologic Significance
 - A) Mechanical Stimulation
 1. Physiologic
 2. Stimulation of male or non-puerperal female breast
 - B) Disturbances of the Chest Wall
 - 1) Thoracic Surgery
 - 2) Chest Burns
 - 3) Herpes Zoster
7. Pelvic Conditions of Etiologic Significance
 - A) Ovarian Insufficiency
 - 1) Castration and partial ovarian resection
 - 2) Precocious and physiologic menopause
 - 3) Precocious puberty associated with hypothyroidism
 - 4) Postpartum lactation and amenorrhea
 - B) Utero-ovarian Tumors with or without Endocrine Function and Surgery Related to these Disorders
 - 1) Carcinoma and leiomyomata of the uterus
 - 2) Ovarian cystomas, carcinomas and dermoids
 - 3) Adnexal tumors
 - 4) Hysterectomy
8. Other Functioning Endocrine Tumors
 - A) Adrenal Carcinoma
 - B) Testicular choriocarcinoma
9. Drugs
 - A) Hormonal Substances
 - 1) Estrogen
 - 2) Androgen
 - B) Other Drugs
 - 1) Rauwolfia Alkaloids
 - 2) Chlorpromazine

quently required several skin grafts. She had suffered from epilepsy for three and one half years prior to parturition and had been under treatment for this condition with phenobarbital and diphenylhydantoin. A right oophorectomy and wedge resection of the left ovary had been performed on this patient in another hospital in 1958 for unknown indications.

Physical examination of this patient revealed the grafted burn scars. Milky secretions could be expressed from both breasts. There was a firm, discrete, three by four centimeter mass palpable in the right breast. The uterus was small, midline, and freely movable. The remainder of the physical examination was not remarkable.

The diagnostic studies were reported as follows: The endometrial biopsy revealed proliferative endometrium. Urinary gonadotrophins were reported between fifty and one-hundred mouse uterine units during a 24 hour period. The normal range in our laboratory for this determination in an adult, premenopausal woman is between 6 and 50 mouse uterine units per twenty-four hours. The patient failed to menstruate following the administration of 100 mg. of progesterone intramuscularly. The skull films were normal. The protein bound iodine was 3.6 mcg. percent. The radioactive iodine uptake rate was $10^3k_1=0.86$, with a 24 hour uptake of 21 percent.

During this patient's hospital stay it was noted that she had a very unstable personality. She did not fully cooperate in these studies and was lost to follow up after discharge from the hospital.

Case 3.

C. W., a 23-year-old, gravida 2, para 1, abortion 1, catatonic schizophrenic, Negro female was first seen in consultation by the gynecology staff in December, 1963. She had suffered a compound comminuted fracture of the left tibia and had noted unexplained lactation since the accident. One spontaneous abortion occurred in 1956 followed by a full term normal pregnancy in 1958. After this pregnancy lactation ceased and normal menses resumed. The last menses were two weeks prior to being seen in consultation. At the time of consultation the patient was being treated with high doses of chlorpromazine.

The physical examination revealed the left leg to be in a cast. A moderate amount of normal appearing milk was easily expressed from both breasts. The uterus was of normal size, mid-

position, and freely movable.

Diagnostic studies revealed the sella turcica to be radiographically normal; pregnancy tests were negative.

It was felt that the lactation was secondary to the high doses of chlorpromazine which the patient was receiving. However, at that time, because of the patient's acute agitation, discontinuation of the medication was felt to be impractical. Therefore the patient was given a course of norethidrone acetate and lactation stopped after one week of therapy.

Discussion:

Three patients with abnormal lactation have been described. The first two patients also had secondary amenorrhea. The third patient continued to have normal menses, although demonstrating galactorrhea. These patients have histories which suggest different etiologies for their condition. The first patient is typical of the patients described by Chiari and Frommel. The second patient while having the onset of her symptoms in the puerperal period has several other factors (epilepsy, chest burns, and oophorectomy) which might well be etiologic factors in her symptomatology. The last patient is not typical of the above described syndromes and is included only to demonstrate the symptomatology which may be produced when high doses of promazine derivatives are used as tranquilizers. It is generally agreed that these drugs can produce galactorrhea but do not necessarily cause alteration of menses.

In order to understand the possible etiological causes of the syndrome of persistent abnormal lactation with or without amenorrhea it is first necessary to thoroughly understand the physiology of normal lactation. Many investigators have been working for years and in an attempt to convincingly elucidate the mechanisms controlling the initiation and maintenance of normal lactation. Their results and conclusions have been variable. Manifold difficulties have been encountered in this field of investigation. No simple accurate methods have yet been developed for analysis of the various hormonal secretions of the adenohypophysis. Of necessity, much of the experimental work has been performed in laboratory animals. These results are difficult to interpret because different animals have differing estrous cycles. Many factors apparently control the initiation and maintenance of lactation in various laboratory animals. As a result these

studies cannot be assumed to be directly applicable to humans. Because of these and other factors, definite conclusions concerning the control of human breast growth, development and lactation can only be hesitatingly drawn.

The proliferation of the human mammary duct is primarily under the control of estrogens, corticosteroids and growth hormone.²⁶ During pregnancy the increased amounts of circulating estrogen and progesterone, prolactin and somatotrophic hormone cause full lobular-alveolar breast development.²⁷ Thus, at the termination of pregnancy the breasts are fully prepared for lactopoesis.

The control of milk secretion postpartum is generally accepted to be regulated by lactogenic hormones secreted from the pars distalis of the pituitary. The factors regulating the increased secretion of prolactin are still controversial. Meites and Turner²⁷ postulate that estrogen evokes prolactin secretion by the adenohypophysis but is prevented from doing so during pregnancy by progesterone. Folley²⁷ hypothesizes that "low circulating levels of estrogen activate the lactogenic function of the anterior pituitary, whereas higher levels of estrogen inhibit lactation. Lactogenic doses of estrogen may be rendered inhibitory by suitable doses of progesterone, this being the normal inhibitory influence during pregnancy. The falling ratio of progesterone—estrogen at parturition removes the inhibition which is replaced by the positive 'lactogenic' effect of estrogen alone".²⁸ Evidence of neurogenic control of lactopoesis is available from experiments with laboratory animals and observations in humans that lactation can be initiated by suckling alone. Meites²⁹ observed that nursing was not necessary for the initiation of milk letdown in rabbits but that for maintenance of increased levels of prolactin, suckling was necessary. Brown³⁰ observed in patients maintained on high levels of estrogen following parturition that suckling would initiate normal lactation. Therefore, it can be concluded that lactopoesis is regulated by the secretion of the pituitary lactogenic hormone which in turn is controlled by both neurogenic and hormonal factors.

The secretion of prolactin appears to be under chronic inhibition directly or indirectly by the central nervous system. The removal of such influence enhances prolactin secretion.³¹ Recent evidence indicates that these neurogenic and hor-

monal factors act through the hypothalamus causing a decrease in the secretion of a neurohormonal factor called prolactin inhibiting factor³² (P.I.F.). This substance is felt to be a polypeptide similar in structure to the neurohumors secreted by the neurohypophysis. It is secreted and stored by cells in the basal tuberal region of the hypothalamus. From here it is carried intraneurally to the region of the hypothalamo-hypophyseal portal system where it is released and carried via the portal system to the pars distalis.³³ In rabbits, lesions placed in the medial basal tuberal region led to the initiation of milk secretion.^{34, 35, 36} Hypophysectomy in laboratory animals followed by reimplantation of the pituitary beneath the temporal lobe led to the initiation of lactation. With reimplantation of the pituitary into the sella and revascularization, normal hormonal function was restored and lactation was not observed.³¹ However, in patients with advanced mammary carcinoma where revascularization of the pituitary was prevented by insertion of a polyethylene plate through the pituitary stalk lactopoesis has been noted.^{37, 38} *In vivo* incubation of anterior pituitary alone produced higher levels of prolactin than adenohypophysis incubated with hypothalamus.³² This evidence thus points to hypothalamic control of the secretion of lactogenic hormones from the pars distalis. Final proof of this hypothesis must await isolation and synthesis of this hypothalamic neurohumor.

The above information suggests that alteration of the pituitary-ovarian hormonal balance, chronic stimulation of the afferent nerves from the breast to the hypothalamus, depression of hypothalamic function either chemically or physically, interruption of the hypothalamo-hypophyseal pathway, or increased production of lactogenic hormones by the adenohypophysis could each individually lead to persistent lactation. Verification of these hypotheses will necessarily have to await further study. Treatment for these symptoms will depend upon the location of the lesion causing the onset of this pathophysiological complex. Specific drug therapy will have to await the development of medication acting at the hypothalamic level stimulating the hypothalamus to produce increased amounts of prolactin inhibiting factor.

Summary:

1. The history of persistent abnormal lactation

and amenorrhea has been reviewed. Careful attention has been given to the various possible etiological factors related to this condition.

2. Three patients demonstrating various aspects of this symptom complex have been presented.
3. The possible inter-relationship of these various etiological factors has been discussed. The role of the hypothalamus and pituitary in producing this syndrome has been explored.

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Echoencephalography

R. A. Brinker, D. L. King, and J. M. Taveras (Columbia-Presbyterian Medical Center, New York), *Amer J Roentgen* 93:781-790 (April) 1965

A study was made of 469 echoencephalograms of which 287 were confirmed by special neuroentgenologic procedures. Anatomic correlation was then undertaken between structures measured on the roentgenograms and the echoes. The overall accuracy of prediction with the posterior midline structures was 97.2%. The false negative rate was 0.5% and the false positive rate was 12.1%. Echoencephalography is an easy, rapid, and apparently harmless neurologic screening test. It carries the same clinical significance in routine use that the demonstration of a calcified pineal gland does when seen on the frontal roentgenogram of the skull. It is obtainable on almost every patient and is especially useful in screening patients suspected of having a space-occupying intracranial lesion.

Urinary Incontinence Following Spinal Injury Treated By Electronic Implant

K. P. S. Caldwell (Royal Devon and Exeter Hosp, Exeter, Devonshire, England), *Lancet* 1:846-847 (April 17) 1965

In the case of a patient who had had urinary incontinence for 15 years, following trauma to the spine, an electronic stimulator was inserted into the bladder sphincter. This has produced controlled continence for 17 months, and at the pres-

ent time he remains free of urinary symptoms. This form of treatment could give many house-bound patients a more free existence; patients confined to bed would become less of a nursing problem.

Time of Ovulation in Relation to Cycle Length

E. T. Bell and J. A. Loraine (University Clinical Endocrinology Research Unit, Edinburgh) *Lancet* 1:1029-1030 (May 15) 1965

An attempt was made to correlate the time of ovulation, judged by the midcycle peak of estrone and estradiol output, with the duration of the menstrual cycle. A total of 45 menstrual cycles in 31 women is reported. These included: (1) a series of 23 cycles from 18 normally menstruating women who had received no hormonal medication either before or during the investigation, (2) a series of 12 cycles in 7 subjects who had previously been treated with various progestogen-estrogen mixtures as oral contraceptives for periods ranging from 9 to 44 months, (3) a series of 10 cycles from 6 women who had received treatment for one cycle with one of three compounds. The results obtained in 23 normal cycles indicate wide variations in the time of ovulation. In 26 of the 45 cycles studied (58%), ovulation occurred within 24 hours of midcycle. In 12 (27%) it actually coincided with the day of midcycle. It is of special interest that, in 11 of the 45 cycles (24%), ovulation took place two to four days before midcycle and in 8 (18%) it occurred two to six days after midcycle.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



DIURETIC THERAPY

Ernest H. Harper, M.D.

University of Arkansas Medical Center

PART I

In the normal person the volume, composition and osmolarity of the extracellular fluid are maintained within narrow limits by the renal regulation of salt and water excretion. Disturbances of renal function, however, may occur and lead to the retention of salt and water within the body. This retention may be due to a primary disease of the kidney or it may be subsequent to indirect effects by a primary disturbance elsewhere upon normal renal function. Whatever the etiology, such retention is an indication for measures that will overcome the renal changes responsible for the salt and water abnormality. Today, there are a multitude of diuretic agents available for this purpose and intelligent selection and use of these agents is based upon a knowledge of how they will affect the physiologic mechanisms responsible for salt and water excretion in the kidney.

Decreased glomerular filtration rate and extensive reabsorption of sodium either singularly or jointly are the prerequisites for edema formation. This is true even in such condition as in the nephrotic syndrome where a decrease in the plasma oncotic pressure (secondary to the excessive loss of protein in the urine) allows the movement of solute and water from the intravascular space into the interstitial space with a resultant decrease in intravascular volume thus the volume control mechanisms are activated and respond by stimulating the secretion of aldosterone by the adrenal glands, thus increasing the reabsorption of sodium and water. A similar sequence of events

occurs in cirrhosis with ascites i.e., a decrease in intravascular volume with secondary secretion of aldosterone except that the primary event is a loss of solute and water into the peritoneal space. In treating the patient with derangement of fluid and electrolyte balance, therapy should be directed at the primary disease as well as the secondary derangement. It should be remembered that edema is a symptom of the primary disease. The presence of edema, however, does warrant therapy and as mentioned earlier, a decrease in glomerular filtration rate and an increase in the reabsorption of sodium are responsible for the edema and therefore our efforts should be directed toward correcting these conditions. Diuretic agents accomplish little in the way of increasing the glomerular filtration rate and their primary action is in decreasing the reabsorption of sodium and thereby increasing the sodium and water excretion. Xanthine diuretics may have a slight effect in increasing glomerular filtration rate but this effect is not marked and these agents are usually used as an adjunct to therapy only. Perhaps a better method to increase glomerular filtration rate is to place the patient in the recumbent position as it is known that this does bring about a slight increase in the renal blood flow with a subsequent increase in the glomerular filtration rate. All of the other agents discussed below actually decrease sodium absorption in the renal tubules either proximally or distally. The osmotic diuretics also decreases sodium reabsorption although in a different manner than the

other diuretics mentioned. Therefore, for the purposes of this discussion we may classify the diuretics into three groups: 1) Those which act to increase glomerular filtration rate, for example, Theophylline, Aminophylline, etc. 2) Osmotic diuretics, e.g., Mannitol and urea and 3) Those acting primarily to decrease sodium reabsorption through tubular mechanism. The latter group includes the pharmacologic agents which interfere with the usual mechanism for sodium reabsorption and which have their primary site of action proximal to the distal tubule and also agents which block the action of aldosterone within the distal tubule thereby inducing a loss of sodium in the urine. Included in the former are mercurials, thiazides, carbonic anhydrase inhibitors, ethacrynic acid, furosemide, and triamterene. Spirolactones would make up the latter group.

Mercurial Diuretics

Although the introduction of the many new oral diuretic agents has decreased the frequency with which mercurial diuretics are prescribed, they remain among the most potent of all agents and constitute an important part of diuretic therapy.

Mechanism of Action

The mercurials act directly on the renal tubules, blocking the reabsorption of sodium and chloride ions which leads to an increase flow of urine and elimination of salt. The exact site of action is not clear but there is evidence to indicate that important effects are exerted in various segments of the tubules. A single site of action cannot explain all of the functional changes noted with mercurial therapy. It is known that chloride is the ion excreted in the greatest quantity during a mercurial diuresis and this indicates the effect on the proximal tubule is the greatest. It is clear that adequate chloride must be available to be presented to the tubule for mercurials to be effective. It has been recognized that the release of mercuric ion occurs more readily in an acid medium. For this reason mercurials are more efficacious if administered when the urine is acid and when the serum chloride level is 100-105 mEq per liter or greater. The establishment of a mild acidosis and increased serum chloride can be accomplished through the administration of acidifying salts, such as ammonium chloride, potassium chloride and arginine hydrochloride. Obviously, in the presence of severe liver disease or renal disease the use of ammonium chloride is

precluded, and if any of these agents are used close observation of the patient is mandatory. Many such patients may tolerate small divided dosages for one to four days but a standing order for ammonium chloride should never be written and daily evaluation of the patient and his therapy should be carried out.

Mercurial diuretics accumulate rapidly at their site of action, therefore, if a desired diuretic effect is not obtained after one to two injections further therapy should be avoided until the causes of refractoriness are established.

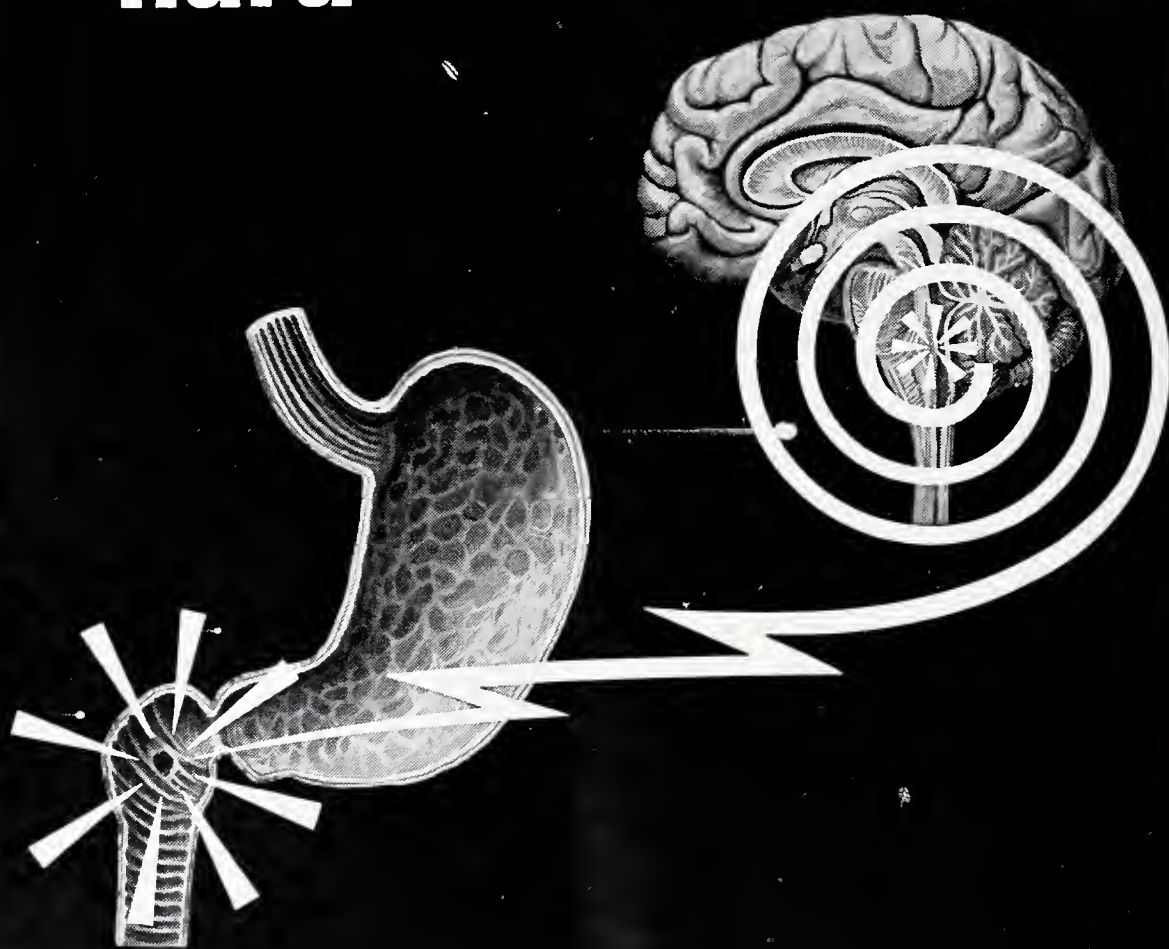
Mercurial diuretics available for parental use contain 39 mg. of mercury per cc. except for mercaptomerin which contains 30 mg. per cc. The maximal diuretic effect is achieved by 80 mg. and therefore it is not necessary to give more than 2 ccs. at one time. Diuresis is usually noted within one to two hours after intramuscular injection with a peak at 6-9 hours and some degree of increased diuresis from 12 to 24 hours. A therapeutic goal is usually considered to be 4 to 8 lb. weight loss for each course of therapy. Unresponsiveness may be associated with a markedly decreased glomerular filtration rate, hypokalemia or the presence of other drugs which block diuresis, e.g., narcotics which may stimulate production of ADH and inhibit diuresis. Maintenance of elevated chloride levels has been mentioned above. The glomerular filtration rate may increase with improvement of cardiac function, the recumbent position and the administration of aminophylline one hour post-injection will, to some extent, increase the renal blood flow and glomerular filtration rate.

The mercurials are usually given intramuscularly although mercaptomerin may also be given subcutaneously. Intravenous administration is extremely hazardous and rarely justified. Cardiac death from ventricular fibrillation and standstill have been reported. Lesser reactions can occur after IM use and these include flushing, pruritus, urticaria, exfoliative dermatitis, fever and nausea.

Thiazides

The success of chlorothiazide, introduced in 1957, has led to the development of a long list of thiazide derivatives. In recent years these have become the most widely used diuretic agents. These are sulfonamyl diuretics and all, except chlorthalidone, have benzothiadiazine with varied substituents. Chlorthalidone contains a phthalimidine nucleus rather than the benzo-

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thiadiazine nucleus and hence is not actually a thiazide. However, it does contain a substituent sulfonamyl group and its pharmacologic properties are similar to those of the thiazides. The chief advantages of the thiazides in clinical use are their oral route of administration and their relative independence to the hydrogen ion concentration of the body fluids.

Mechanism of Action

The primary effect is to cause a marked chloruresis and natruresis. This is effected by decreased tubular reabsorption of sodium but the exact mechanism is not known. Beyer and Baer believe it to be due to carbonic anhydrase inhibition occurring primarily at the proximal tubule. This theory is not established however and the exact mechanism and site of action remains unknown. It is known that thiazides exert an influence in both the proximal and distal tubule and it is generally agreed that the predominant site of action is most likely distal but is independent of the area of aldosterone inhibition.

All of the thiazides are rapidly absorbed in the GI tract. The peak blood level occur in about two hours with peak diuretic action somewhat later. The duration of action is 12 to 18 hours for chlorthiazide and hydrochlorothiazide; 24 hours for methyclothiazide, quinethazine, and cendroflumethiazide; 36 hours for polythiazide and 48 hours for chlorthialadone. The administration of these agents should be given in accordance with their duration of action. The dosage selected should be the smallest amount that will accomplish the desired effects. Although some of these agents are more potent than others on a unit weight basis none have any outstanding advantages over the others when given in the optimal dosages.

Thiazides are of value in most instances of fluid retention but they may aggravate the hypokalemia in primary aldosteronism. They have a synergistic action in combination with other diuretics, and such combinations are exceptionally advantageous in the treatment of conditions such as nephrotic syndrome and cirrhosis with ascites. Because of the ease of oral administration, the infrequent occurrence of side effects and a significant natriuretic and chloruretic effect these agents have become the drugs of choice in most clinical states associated with fluid retention.

Complications

The most frequent complication is that of hypo-

kalemia mentioned above. This complication may be avoided by the administration of potassium containing drugs or through dietary supplementation. The simultaneous administration of an aldosterone antagonist or triamterone will also block the potassium loss. Because hypokalemia has been a frequent complication noted with thiazide drugs, agents are available with potassium included. However, recent reports have implicated such agents in small bowel injury or ulcers. For this reason many now prefer to use liquid potassium chloride administered in a syrup combined with dietary supplementation of potassium rather than use potassium chloride tablets. Usually, 60 to 100 mEq. of potassium is required to correct the diuretic induced hypokalemia. This is equivalent to four to seven grams of potassium chloride and is probably best provided by liquid KCL. Since one medium size banana contains approximately 15 mEq. of potassium and 8 ounces of orange juice has approximately 12 mEq. of potassium it is apparent that even in the patient who supplements his diet the physician must still beware of hypokalemia. Conversely the administration of potassium containing compounds to patients with any degree of renal insufficiency should be undertaken with utmost caution. With impaired renal function the serum potassium may quickly climb to toxic levels. Another complication is that of thiazide induced carbohydrate intolerance. A recent report has presented evidence for a peripheral action of chlorthiazide but the exact mechanism remains unknown. This effect does not contraindicate the use of thiazides in pre-diabetics or known diabetics but the physician should be aware of this complication and gauge his therapy accordingly.

Uric acid levels are also increased in patients receiving thiazides and although the hyperuricemia is usually asymptomatic, a few cases of acute gout have been reported. Thiazides should be administered with caution to patients who have a propensity to develop urate stones.

Other complications have been reported and these include thrombocytopenia, neutropenia, photo-sensitivity, jaundice, and pancreatitis. A recent editorial comments on suggested data that neonatal thrombocytopenia may be associated with pre-natal administration of thiazide drugs. While this association has not been definitely established the thiazides are commonly used drugs

during the course of pregnancy and the physician must be alert for the possibility of this association.

Carbonic Anhydrase Inhibitors

The phototype of this group of drugs is acetazolamide. These drugs are mild diuretics and produce only modest decreases in solute and free water clearances. They are most effective in patients with elevated sodium bicarbonate concentration and are used primarily to combat metabolic hypokalemic alkalosis secondary to the administration of other diuretic agents. The combination of acetazolamide with acidifying salts is frequently used in an attempt to lower the serum bicarbonates and increase the serum chloride preparatory to an attempt at mercurial diuresis.

The mechanism of action of acetazolamide is to block the enzyme carbonic anhydrase and thus inhibit the formation of carbonic acid and effect a decreased reabsorption of sodium and bicarbonate. The duration of action is for 6 to 8 hours. One of the handicaps to this type of therapy is the tolerance which quickly develops and thus makes the effective use of these agents self-limited.

The chief toxic effect of acetazolamide is to produce ammonium intoxication in patients with hepatic disease. Minor toxic manifestations including anorexia, nausea, vomiting, diarrhea, paresthesias, lassitude and drowsiness are also prone to occur if therapy is extended beyond a few days.

Ethacrynic Acid

Ethacrynic acid is an unsaturated ketone derivative of phenoxyacetic acid. It is chemically unrelated to other diuretic drugs currently in use. It is currently under investigation but appears to be a very potent diuretic agent even in refractory edema. Recent reports have demonstrated active diuresis produced with ethacrynic acids in patients who have been refractory to other measures.

Ethacrynic acid has been found to be a more potent natriuretic agent than thiazide or mercurials and in addition its effect has been found to be additive to these agents. Effectiveness of therapy of ethacrynic acid was diminished with continued therapy but was effectively restored by intermittent use.

Mechanism of Action

Ethacrynic acid blocks sodium and chloride reabsorption probably in both the proximal portion of the renal tubule and in the ascending limb of the loop of Henle. The chloruretic effect has

been noted to be greater than the natriuretic effect.

Ethacrynic acid begins to act as a diuretic shortly after administration and has a duration of action of some 6 to 8 hours. The dose of ethacrynic acid varies widely from patient to patient and the same diuretic dose may produce a slight to massive diuresis in different patients. For this reason each patient should be individually evaluated with regards to the dose of ethacrynic acid required and should be started on a low dose, e.g., 50 milligrams a day on the first day and the dose altered from that point on according to the response of the patient. Electrolytes should be monitored and the drug should not be given without the continued close supervision of the physician.

Prolonged administration has been noted to cause extracellular alkalosis by producing potassium depletion; promoting the increased renal excretion of H^+ ions and by inducing contraction extracellular fluid space. Increased aldosterone activity has been noted after several days therapy and potassium loss seems to parallel the concurrent endogenous aldosterone activity. The alkalosis has been noted to persist until serum chloride levels were repleted. Other side effects have included anorexia, transient azotemia in patients with renal disease and asymptomatic hyperuricemia. The most serious side effect has been that of massive diuresis producing orthostatic hypotension and precipitating hepatic coma in cirrhotic patients. Deaths have been reported due to severe electrolyte and fluid depletion occurring over a brief period of time. The extreme potency of this agent demands that great care be exercised in its use.

Triamterene

Triamterene is a diuretic agent that is unrelated chemically to any other available diuretic agent at this time. It is a pteridine derivative and bears a chemical relationship to folic acid. However, there is no evidence of any anti-folic acid activity for triamterene. Triamterene possesses the unusual ability to cause excretion of increased amounts of sodium and chloride without the concomitant loss of potassium. For this reason it was initially thought to be a non-steroid aldosterone antagonist. However, it was discovered to act synergistically with spironolactone and also found to act in adrenalectomized rats and human subjects. Thus it must have diuretic activity

other than that of a pure mineralo-corticoid inhibitor.

Mechanism of Action

Although triamterene has been shown not to be an aldosterone antagonist it does completely antagonize the sodium retaining effects of 9-alpha-fluorohydrocortisone. It is now generally accepted that triamterene acts in the same manner as an aldosterone antagonist although having a different mechanism of action from that of spironolactone. Thus, triamterene is felt to interfere with tubular exchange mechanisms whereby sodium ions are exchanged for potassium ions in the distal tubule. Interference with the sodium-hydrogen ion exchange mechanisms has also been demonstrated and this suggests that triamterene may have an effect on the proximal as well as the distal tubule.

Triamterene is a moderately potent natriuretic and diuretic agent. Although not as potent as thiazides it does have the property to conserve potassium and this property adds to its usefulness. It has been found to be effective in most instances of pathologic retention of fluid in man and is particularly useful in patients who are refractory to other diuretics and in those with secondary aldosteronism.

It should be stressed that triamterene has the ability to increase serum potassium, particularly when given in high doses and while potassium retention is desirable in many instances, prolonged retention can produce hyperkalemia in patients with impaired renal function.

Triamterene has been found to be particularly effective when combined with other diuretic agents and frequently serves the dual purpose of increasing the diuresis and at the same time preventing potassium loss.

The drug reaches peak level in the blood some 6 to 8 hours after oral administration and is almost undetectable at 24 hours. Peak diuretic activity usually occurs within the first ten hours after administration. There appears to be an abrupt cessation of activity after 16 to 18 hours. The individual response to triamterene administered alone has been variable, being sometimes effective where other agents were not but generally having less of a natriuretic effect than other diuretics. Its chief value appears to be in combination with other diuretic agents.

Few toxic effects have been noted. They include vomiting, nausea, and diarrhea. Elevation

in blood urea nitrogen has been noted as with most other diuretics. A few patients have been found to have hyperuricemia and hyperglycemia, as with thiazide diuretics but these are unusual findings.

Aldosterone Antagonist (Spirolactones)

The presence of increased amounts of aldosterone has been noted in many clinical conditions characterized by edema formation. Those edematous states associated with cirrhosis of the liver and the nephrotic syndrome are notable examples. It was formerly thought that the edema associated with congestive heart failure was caused or maintained by increased aldosterone secretion but it has been recently demonstrated that the edema of congestive heart failure can occur without appreciable amounts of aldosterone. The recognition of the presence of increased amounts of aldosterone in the conditions noted above stimulated the search for agents that would block the action of aldosterone in the kidney. Spirolactones were introduced in 1957.

Spirolactones are chemical analogues of aldosterone. Spironolactone is the most potent currently available for use. In general, they lack endocrine activity and the facility to block effects of standard steroids in endocrinologic tests. Their action appears to be confined to mineralo-corticoid antagonism and they inhibit only the action of aldosterone on the distal renal tubule and do not depress other adrenal function.

Mechanism of Action

Spirolactones have a site of action in the distal tubule where they are thought to act by competitive inhibition of aldosterone, blocking the transport mechanism responsible for the reabsorption of sodium and the secretion of potassium. They do not interfere with the production or release of aldosterone by the adrenal cortex. They effect no change in glomerular filtration rate renal plasma flow.

A diuretic effect is not noted until some forty-eight hours or more after therapy is initiated. The activity may then increase progressively until a peak is obtained in two to four days. Resistance has not been to develop and continuance administration of the drug does not appear to effect the diuretic action. Diuresis will continue for 48 hours or so after cessation of therapy.

Aldosterone antagonists should only rarely be used as the initial or only drug in the treatment of edema. Their action is confined to the distal

tubule where less than 5% of the filtered sodium is reabsorbed. There is no effect on the proximal tubule where more than 90% of the sodium chloride is reabsorbed. Therefore, if proximal reabsorption of sodium is not blocked in the proximal tubule, an insufficient amount may reach the distal tubule for spiro-lactone to be effective. For this reason, spironolactone has frequently been observed to be relatively ineffective until combined with an agent acting primarily on the proximal tubule such as mercurial diuretic. Thiazides also act proximal to the site of spironolactone and are often used concurrently with spironolactone.

Impressive therapeutic results have been obtained with spironolactone in patients with cirrhosis and in nephrotic syndrome. As mentioned earlier the results in congestive heart failure are variable.

The complications of spironolactone therapy have been uncommon and not of a severe nature. Hyperkalemia has only rarely occurred.

Furosemide

Furosemide is a benzothiadiazine sulfonamyl containing analogue which is chemically distinct from thiazide group of drugs. Earlier reports have noted that the diuretic response also differs from that elicited by thiazides in duration of action and in natriuretic and in chloruretic response.

It is potent acting diuretic having its greatest effect within 6 hours following ingestion. Results thus far published have shown the agent to be more potent than other oral diuretics and its marked effect on chloride secretion most closely resembles that seen with mercurial diuretics. Effectiveness has been observed in a variety of edematous conditions.

The mechanism of action has not been established. Information presently available suggests an effect on the proximal tubule.

Side effects of nausea, vomiting and weakness have occurred in some patients but the consistent occurrence of other complications have not yet been reported. In a summary, furosemide is a new potent oral diuretic agent whose diuretic activity more closely resembles that seen with a mercurial agent than with thiazides.

Osmotic Diuretics

Osmotic diuretics are not potent diuretic agents and are only sparingly used today. They exert their effect by creating a high concentration

gradient within the tubular lumen and by reducing the length of time that the fluid is in contact with the tubular epithelium. The increased excretion of sodium and water is the result of the decreased proximal tubular reabsorption. Osmotic diuretics are only moderately effective and have the disadvantage of requiring intravenous administration. Therefore, they are not widely used in the treatment of edema today.

(TO BE CONCLUDED)

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Bilateral Ureteral Obstruction

H. Kiefer et al. (Medizinische Universitätsklinik, Freiburg i. Br., Germany) *Med Klin* 60:623-625 (April 16) 1965

The authors present five patients with bilateral ureteral obstruction. In four of them the closure of both ureters was caused by concrements. In the fifth patient, one ureter was obstructed by concrements, and inflammatory changes blocked the ostium of the other one. All five patients had been referred to the clinic for hemodialysis on account of "anuria with beginning uremia." The authors direct attention to the fact that the anamnesis as well as the symptoms may obscure a bilateral ureteral occlusion and prevent a correct diagnosis. Although the literature suggests that bilateral ureteral occlusion by concrements is rare, the authors feel that this is not the case.

Glucose Tolerance After Myocardial Infarction

R. J. Kimber and D. N. Phear (Queen Elizabeth Hosp, Woodville, South Australia) *Med J Aust* 1:686-687 (May 8) 1965

The association between myocardial infarction and glucose tolerance disturbance is well established; but the reasons for this association are obscure and the disordered glucose tolerance has seldom been assessed by modern methods. Glucose tolerance and prednisone-glucose tolerance tests were, therefore, carried out on a group of 50 patients after myocardial infarction with the aim of establishing the incidence of diabetes and prediabetes among them. It was found that 14 of the 50 had diabetes, 2 had prediabetes, and 8 others had transient diabetes shortly after the infarction. Among 50 control subjects, there were only four diabetics.

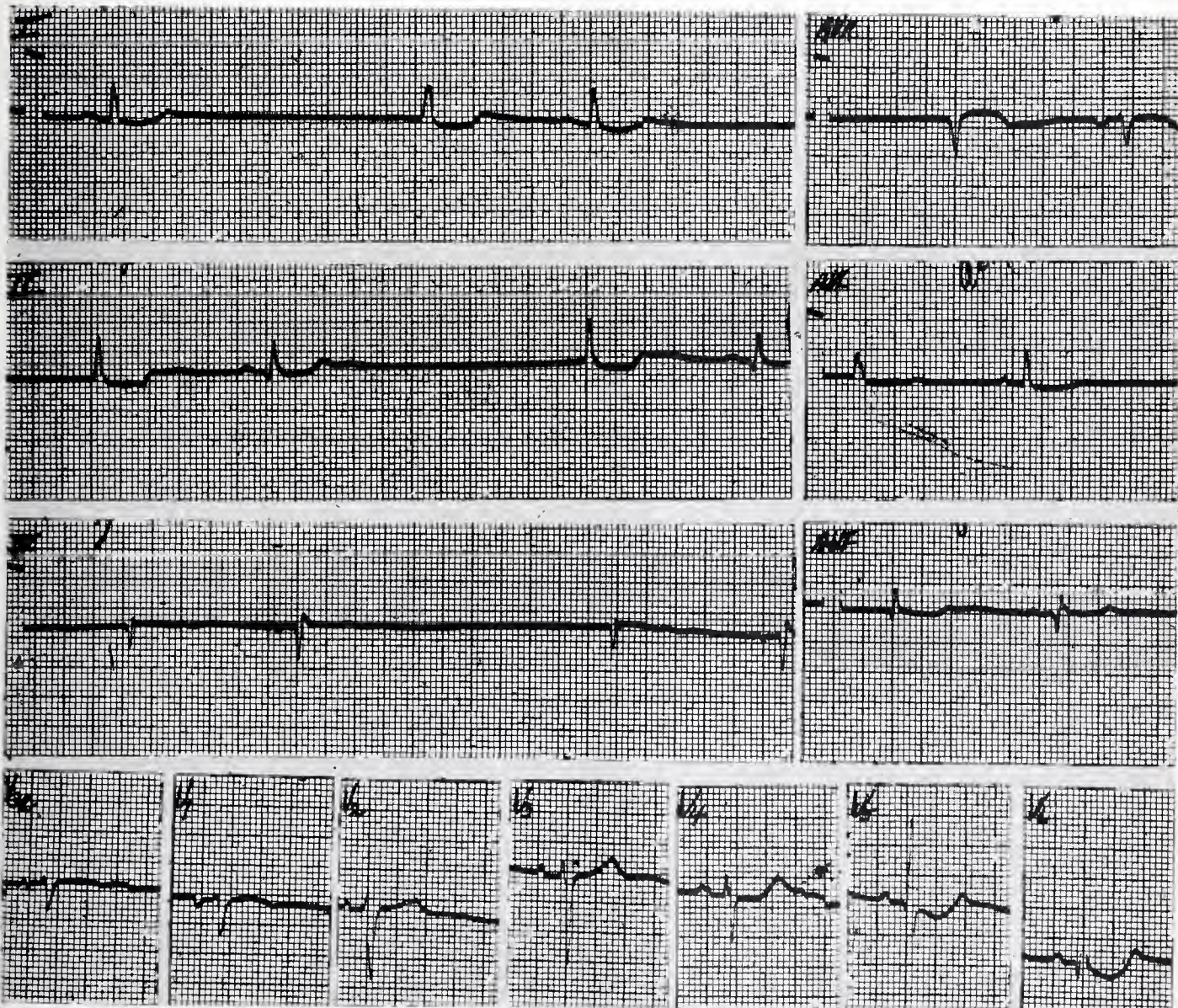


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 64 SEX: M BUILD: MEDIUM BLOOD PRESSURE: 130/8
CARDIAC DIAGNOSIS: A.S.H.D.
OTHER DIAGNOSES: Digitalis intoxication
MEDICATION: Digitalis, quinidine, long-acting nitrate and sleeping pill
HISTORY: Myocardial infarction

SEE ANSWER ON PAGE 158

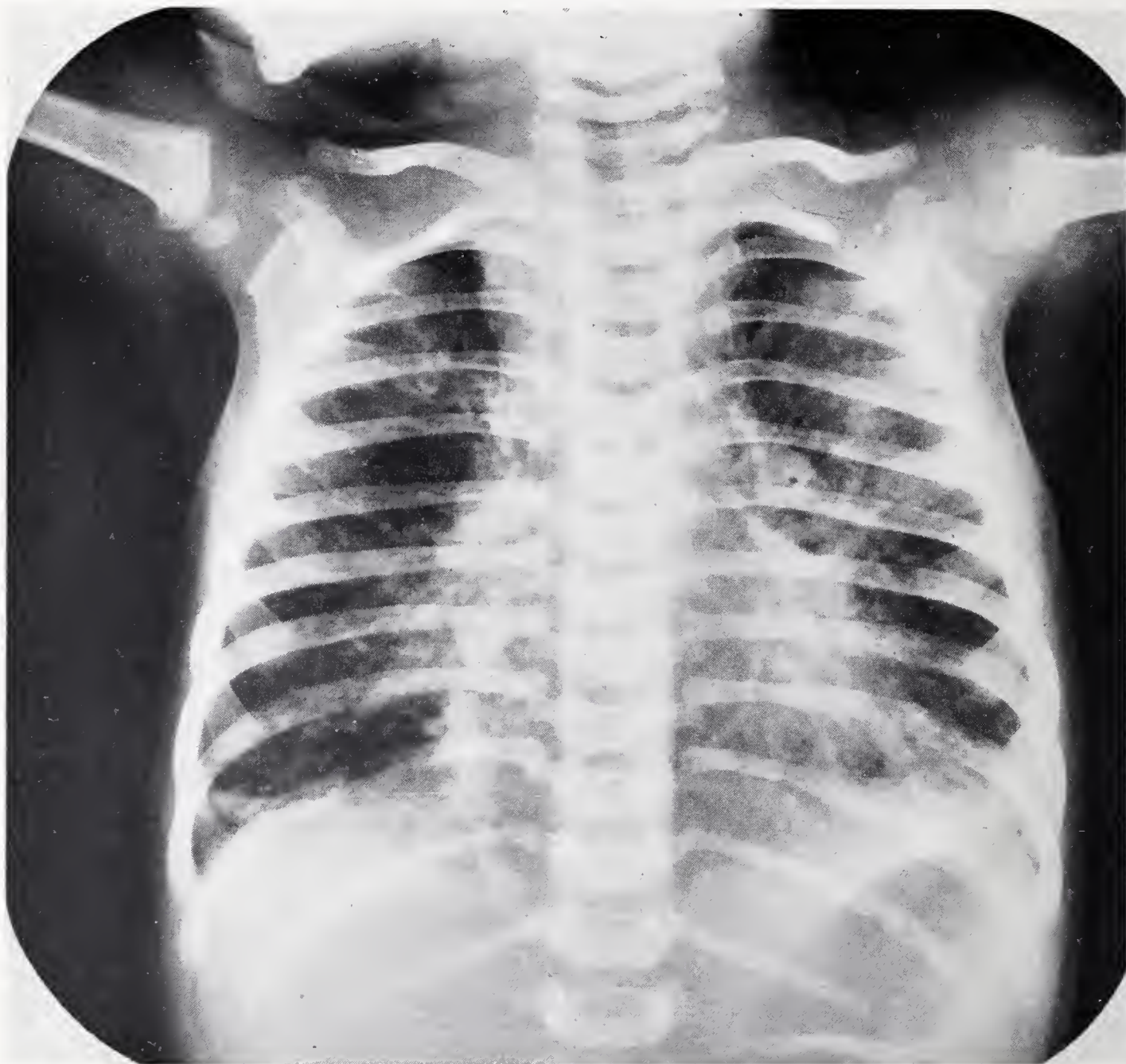


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

SEE ANSWER ON PAGE 158



No. 08-78-84

10 month-old female

HISTORY: The patient had had repeated episodes of pneumonia since she was two months old. At the time this film was made she had a two day history of fever, cough and dyspnea.



Recommendations for Influenza Immunization and Control in Civilian Population 1965-1966

The Public Health Service Advisory Committee on Immunization Practices met on June 11, 1965, and issued the following recommendations regarding influenza immunization and control in the civilian population.

1. *Influenza Prospectus—1965-66—United States*

Influenza was confirmed in a majority of States in the eastern two-thirds of the country during the 1964-65 season. Although widespread in some areas, the level of involvement was generally low and excess pneumonia-influenza mortality was only modestly elevated. Most States in the Far West were unaffected.

Numerous strains of Type A₂ virus were isolated and subsequently characterized as showing a drift in antigenic constitution from previous A₂ viruses. There was, however, no major antigenic change. A few strains of Type B influenza virus were recovered from discrete outbreaks recognized in the West.

Based on available morbidity and mortality data from the 1964-65 influenza experience in the United States was limited. The last major epidemic of Type A illness occurred in 1962-63 and on the West Coast in 1963-64. In view of influenza's two to three year periodicity, increased amounts of influenza may be expected in the coming season. Areas that were most involved in 1964-65 might expect a lesser amount of disease in 1965-66.

Although Type A viruses may predominate in 1965-66, the presence of Type B influenza in the U.S. and its prevalence in Europe in 1964-65, increases the expectation of Type B outbreaks in 1965-66, the presence of Type B influenza in the

2. *Vaccine Efficacy*

Influenza vaccine has consistently shown a substantial protective value when the viruses incorporated in the vaccine were antigenically similar

to those causing the epidemic disease. Exceptions to the vaccines' apparent effectiveness have occurred in instances when the prevalent virus underwent a major antigenic shift after vaccines had been formulated. Careful study goes into the annual design and updating of the composition of influenza vaccines. The final selection of components reflects the best judgment regarding a potent, contemporary vaccine.

That influenza vaccine prevents mortality from influenza, particularly among the aged and chronically ill, is based upon inference. It is presumed that vaccine protection demonstrated in studies among younger persons is similar among the aged and chronically ill, the group at particular risk of death should they acquire the disease. It is further assumed that such protection against clinical disease serves to protect them also against mortality associated with epidemic influenza.

3. *High Risk Groups*

Annual immunization is generally recommended for persons in groups who experience high mortality from epidemic influenza. Such groups include:

- (a) Persons at all ages who suffer from chronic debilitating disease, e.g., chronic and cardiovascular, pulmonary, renal or metabolic disorders; in particular:
 1. Patients with rheumatic heart disease, especially those with mitral stenosis.
 2. Patients with other cardiovascular disorders such as arteriosclerotic heart disease and hypertension, especially those with evidence of frank or incipient cardiac insufficiency.
 3. Patients with chronic bronchopulmonary disease, for example, chronic asthma, chronic bronchitis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, pul-

monary tuberculosis.

4. Patients with diabetes mellitus and Addison's disease.

(b) Persons in older age groups. During three successive recent epidemics a moderate increase in mortality has been demonstrated among persons over 45 years of age and a marked increase among those over 65 years of age.

(c) Pregnant women—It is to be noted that some increased mortality was observed among pregnant women during the 1957-58 influenza A₂ epidemic both in this country and abroad. It has not, however, been demonstrated in subsequent years.

(d) Patients residing in Nursing Homes, Chronic Disease Hospitals, and other such environments should be considered at particular risk since their more crowded living arrangements may allow for greater spread of disease once an outbreak has been established.

4. Time of Vaccination

Vaccination should begin as soon as practicable after September 1 and ideally should be completed by mid-December. It is important that immunization be carried out before influenza occurs in the immediate area since there is a two week interval before the development of antibodies.

5. Vaccine Composition

Recent isolates of the Type A viruses demonstrate a continued alteration in antigenic structure. Accordingly, it will be noted that a more recent strain of influenza A₂ has been added. The antigenic composition of the vaccine for the 1965-66 season is as follows:

Type Strain	CCA Units per ml.
A PR8	100
A ₁ Ann Arbor/1/57	100
A ₂ Japan/170/62	100
A ₂ Taiwan/1/64	100
B Maryland/1/59	200
	600

6. Dose and Schedule of Vaccination

(a) Primary series—Individuals not vaccinated since July 1963 when the last major change in vaccine formulation was made should receive an initial subcutaneous dose of polyvalent vaccine followed by a second dose two months later. It is to be pointed out, however, that even a single dose can afford significant protection. A second dose given as early as two weeks following the first will enhance the protection.

Summary:

Adults and children over 12 years

1.0 ml. dose subcutaneously on two occasions as specified above.

*Children 6 to 12 years**

0.5 ml. dose subcutaneously on two occasions as specified above.

*Children 3 months to 5 years**

0.1-0.2 ml. of vaccine given subcutaneously on two occasions separated by one to two weeks followed by a third dose of 0.1-0.2 ml. about two months later.

(b) Revaccination—Individuals vaccinated since July 1963 need receive but a single booster of vaccine at the dose level specified for the primary series. For those in the older age groups who have previously experienced undue reactions to influenza vaccine, a revaccination dose of 0.1 ml. given by careful intracutaneous injection can be expected to give an antibody response which is somewhat comparable to that induced by the 1.0 ml. subcutaneous dose. The intracutaneous route is not recommended, however, for use in other than these special cases.

(c) Contraindication—Since the vaccine viruses are produced in eggs, the vaccine should not be administered to those who are hypersensitive to eggs or egg products.

*Since febrile reactions in this age group are common following influenza vaccination, an antipyretic may be indicated.



EDITORIAL

"Paired Pulse" Strengthens the Heart Beat

Alfred Kahn, Jr., M.D.

Two recent issues of The Bulletin of the New York Academy of Medicine have been devoted to a series of papers on artificially induced arrhythmia of the heart characterized by the induction of an extrasystole after the natural beat. Cranefield (Bulletin of New York Academy of Medicine, Vol. 41, p. 419, May 1965) states this arrhythmia has two important effects. Firstly, the extrasystole tends to "shield the heart from adventitious extrasystoles for twice as long as it usually is." Secondly, although the extrasystole is mechanically ineffective, the succeeding natural beat is stronger than usual; this was said to be effective in experimental acute heart failure. He relates that the extrasystole should be early enough to be visible on the electrocardiogram but mechanically inconsequential; the earlier the extrasystole, the stronger the next contraction. Quoting Woodworth he states that the potentiation of the contraction lasts 8 to 9 beats and is not followed by a significant depression of force. Katz is credited with bringing into prominence the fact that the ventricle could be stimulated for a prolonged period so that every other beat was mechanically ineffective — the electric beat was twice the mechanical beat.

Katz, in this symposium, states that the benefits of "coupled beats" are (1) increased cardiac output because of greater filling time between effective cardiac beats, (2) increase coronary artery blood flow, and if the coronary blood flow is low, this procedure will decrease angina and afford better circulation to a failing myocardium, and (3) helps overcome the mechanical disadvantage of a dilated heart.

Chardack, reporting on this technique, found that coupled beats leads to a 57% increase in coronary blood flow and 70% of oxygen consump-

tion. He says that coupled beats "in the intact organism and the non-failing heart, does not lead to an increase in cardiac output and that potentiation with concomitant slowing do not improve arterial pressure and cardiac output unless slowing is applied to rates which had been fast enough to bring about adverse hemodynamic effects."

Baunwald's group from The National Heart Institute have tried the coupled heartbeat technique on muscle strips, intact hearts, and in patients. In discussing the clinical effects, they state that the cardiac output has not consistently risen in patients with myocardial failure. They all feel that it is too early to really define the clinical benefits of this technique. They cautioned against the use of coupled beats in coronary artery insufficiency unless the ventricular rate can be slowed significantly.

Hoffman, Bartelstone, Scherlag, and Cranefield feel that paired beats may have clinical benefits in certain instances. They feel this arrhythmia may be helpful in chronic heart failure. After defibrillation some hearts do not have a strong mechanical beat and the coupled beat might help. So-called irreversible shock of certain types probably would benefit from "coupled beats"; the authors mention post-infarction shock. They, too, warn of the increased oxygen demand of hearts in which this technique is employed, also they caution against the accidental induction of ventricular fibrillation.

In a succeeding Bulletin of the New York Academy of Medicine (June 1965) the symposium is continued. Meijler and Durrer indicate that calcium plays the important role "in translation of potentiation into myocardial shortening." Their clinical trials were inconclusive.

Sarnoff et al. have reported that during digi-

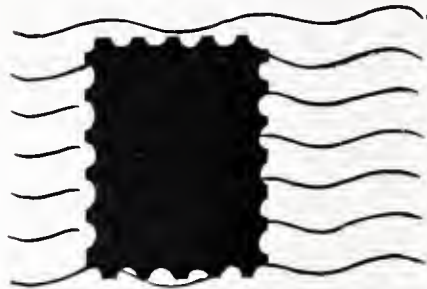
talization potassium ion is lost from the myocardium. The same thing occurs with paired pulse stimulation. Sarnoff compares paired pulse to electro-digitalization in that potassium is lost in association with an increase in contractile power; oxygen is used in greater quantities with paired pulse but not in digitalization.

Other authors in this symposium have presented some further elaborations on metabolism, animal experimentation, etc.

Perhaps the fundamental observation to be drawn from this symposium is that experimental work which was done before the turn of the century is now being expanded and measured in terms of clinical significance. The ultimate value to the patient may not be the use of the paired pulse but the byways of experimentation into which this interesting phenomena has lead the cardiac research teams.



LETTERS



TO THE EDITOR

Alfred Kahn, Jr., M.D., Editor
The Journal of the Arkansas Medical Society
1300 West Sixth Street
Little Rock, Arkansas
Dear Dr. Kahn,

I have read with interest, your editorial, THE FINAL COMMON PATHWAY, which appears in the June 1965 issue of the Journal of the Arkansas Medical Society.

If it is the policy of the Journal to print letters to the Editor, I would like to present another point of view.

In many instances, understandably, the patient requests hospitalization for minor surgical procedures, and diagnostic procedures, which could be done as safely and effectively, in many of the physician's offices. This situation exists because many of the insurance carriers themselves, specify

that the patient must be hospitalized a certain number of hours in order to receive benefits under the terms of their contracts.

The physician finds it quite difficult to convince the holder of these insurance contracts, that he should have his medical care in the physician's office, pay the bills out of his own pocket, when he is at the same time paying premiums which will pay for these same services in the hospital. In short, the physician has little choice but to comply with the rules laid down by the insurance carrier, and hospitalize the patient.

Fortunately, we have some insurance companies which will pay, at least in part, for these services when rendered in the physician's office. I think it is high time that the physicians acquaint their patients with the names of the companies who will take care of their minor medical needs in the physician's office. Perhaps then, the companies requiring the patients to be hospitalized so that they may receive benefits under the terms of their contracts, will re-evaluate the problem, and come up with more comprehensive contracts.

I would like to have an expression from other doctors over the state about this problem.

Kindest personal regards and best wishes.

Sincerely,

M. C. Hawkins, Jr., M.D.

MEDICINE IN THE



MEFFA Receives Memorial Contribution

Members of the Class of 1945 of the University of Arkansas Medical School have contributed \$530 to the Medical Education Foundation for Arkansas in memory of a class member, Dr. William I. Porter, who died in April 1965. The Board of MEFFA commends the Class of 1945 for its generous contribution to the Foundation.

MEFFA has purchased ten microscopes which are leased to needy medical students at the University of Arkansas, established a MEFFA Student Loan Fund at the School, and contributed funds for student loans under a federal-matching-fund program. The MEFFA Board of Trustees is pleased that the Class of 1945 chose this way of honoring the memory of Dr. Porter and furthering medical education.

Robins Named to New Post

Dr. R. B. Robins, Chicago, formerly of Camden, Arkansas, has been named by the Department of Health, Education and Welfare as a consultant to the Communicable Disease Center at Atlanta, Georgia. He along with a group of scientists, will meet occasionally in Atlanta in an advisory capacity.

Dr. Robins has developed in Chicago a new graduate medical educational program in general practice which was given American Medical Association approval at its recent annual meeting in New York City and he is now receiving applications from medical graduates from all over the world for acceptance as trainees under his program to develop family doctors.

Dermatology Library for University of Arkansas Medical Center

The University of Arkansas Medical Center has observed official dedication of a new dermatology library donated by Dr. and Mrs. Davis W. Goldstein of Fort Smith. Dr. Harold O. Perry, associate professor of dermatology at Mayo Clinic, Rochester, Minn., was principal speaker. Storm

Whaley, University Vice President for Health Sciences; Dr. Winston K. Shorey, Dean of the School of Medicine, and Dr. Calvin J. Dillaha, Professor and Head of the Division of Dermatology, participated in the program which was accompanied by a reception for Dr. and Mrs. Goldstein.

42nd Annual Convention of Woman's Auxiliary

More than 1,100 members and 500 children attended the 42nd annual convention of the Woman's Auxiliary to the American Medical Association held at New York's Americana Hotel June 20-24. Mrs. William H. Evans, Youngstown, Ohio, president, conducted the convention sessions.

Educational Program in Psychiatry for the Non-Psychiatric Physician

Robert R. Matthews, M.D., Coordinator of Continuing Education in Psychiatry, at the University of Arkansas Medical Center, reports that an educational program in psychiatry for the non-psychiatric physician is presently being designed. This is being done with the full cooperation and co-sponsorship of the Arkansas State Medical Society, Pulaski County Medical Society, Arkansas Academy of General Practice, Arkansas State Hospital, Local VA Hospitals, and the Arkansas Psychiatric Society; it has the potential to develop a very fine program that can benefit the non-psychiatric physician greatly in his practice. Category I accreditation will be received from the Arkansas Academy of General Practice for participation in this program.

Beginning in September the University of Arkansas Medical Center is offering two small group subject-oriented seminars which will be limited to 10 participants each. These seminars will meet once a week for two hours on alternate weeks for 3 to 6 months. Topics for discussion, which will primarily be selected by the non-psychiatric physician, will be presented by means of lectures, live case presentations, discussion of problem cases

relative to the topic, and audio-visual aids, when applicable.

Medical School-VA Hospital Relationships

The utilization of Veterans Administration hospitals by medical schools in programs of education and research was studied in a survey made by the AAMC Committee on Medical School-Veterans Administration Relationships. This survey conducted in 1963 requested information comparable to the data collected in an earlier study made in 1959.

The earlier study found that 71 of 82 four-year medical schools participated in the operation of VA hospitals by means of a Dean's Committee. The more recent study indicates that 75 of the 86 four-year medical schools similarly participated.

Total student participation in undergraduate education programs at VA hospitals increased by 13% from 11,703 in 1959 to 13,193 in 1963 with the major increase occurring at the second year level. The number of days spent at the hospital per student in 1963 as compared with 1959 shows a decrease at the second year level of 34% while the third year level increased 12% and the fourth year level increased 66%. Thus, it appears that over-all utilization of VA hospitals has increased considerably both in terms of number of participants (primarily in the second year) and in the amount of time spent (primarily the third and fourth years).

Results of the National Intern Matching Program for 1965

This issue reports results of the 14th annual National Intern Matching Program for the internship year 1965-66 and makes comparisons with the results of the 1953 Matching Program. In this 12-year period, the total number of NIMP participants matched with hospitals increased by 28%, from 5,744 in 1953 to 7,342 in 1965.

In 1953 the NIMP matched 2,643 interns with hospitals having a major medical school affiliation and matched 2,138 interns to hospitals without medical school affiliation. In 1965 the major affiliated hospitals received 4,218 interns through NIMP while the unaffiliated hospitals received 2,053. It is apparent that hospitals with a major teaching affiliation are receiving a greater share of participants in the NIMP. While their share of total participants increased 11.7%, the numeric

increase resulting from an expanded pool of participants yielded a 60% increase in 1965 over the 1953 total. Nonaffiliated hospitals have shown both a numeric and percentage share decrease in 1965 as compared with 1953.

THE MONTH IN WASHINGTON

Washington, D.C.—The Public Health Services Advisory Committee on Immunization Practices has predicted increased amounts of influenza in the coming season (1965-66).

The committee again recommended immunization for persons in groups who experience high mortality from epidemic influenza. Vaccination, the committee said, should begin about Sept. 1, and ideally be completed by mid-December.

"It is important that immunization be carried out before influenza occurs in the immediate area since there is a two-week interval before the development of anti-bodies," the committee said.

Groups for which annual immunization were recommended:

"(a) Persons at all ages who suffer from chronic debilitating disease, e.g., chronic and cardiovascular, pulmonary, renal or metabolic disorders; in particular:

"1. Patients with rheumatic heart disease, especially those with mitral stenosis.

"2. Patients with other cardiovascular disorders such as arteriosclerotic heart disease and hypertension, especially those with evidence of frank or incipient cardiac insufficiency.

"3. Patients with chronic bronchopulmonary disease, for example, chronic asthma, chronic bronchitis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, pulmonary tuberculosis.

"4. Patients with diabetes mellitus and Addison's disease.

"(b) Persons in older age groups.

"(c) Pregnant women.

"(d) Patients residing in Nursing Homes, Chronic Disease Hospitals, and other such environments should be considered as particular risks since their more crowded living arrangements may allow for greater spread of disease once an outbreak has been established."

The committee reported that there were cases of influenza in a majority of the states in the eastern two-thirds of the country during last season (1964-65) but that the amount of the disease in the United States as a whole was limited. There was

no major epidemic anywhere in the country and most states in the far west were unaffected.

The committee said that Type A influenza viruses may predominate in 1965-66 but that Type B outbreaks also could be expected.

As to vaccine efficacy, the committee said:

"Influenza vaccine has consistently shown a substantial protective value when the viruses incorporated in the vaccine were antigenically similar to those causing the epidemic disease. Exceptions to the vaccines' apparent effectiveness have occurred in instances when the prevalent virus underwent a major antigenic shift after vaccines had been formulated. Careful study goes into the annual design and updating of the composition of influenza vaccines. The final selection of components reflects the best judgment regarding a potent, contemporary vaccine.

"That influenza vaccine prevents mortality from influenza, particularly among the aged and chronically ill, is based upon inference. It is presumed that vaccine protection demonstrated in studies among younger persons is similar among the aged and chronically ill, the group at particular risk of death should they acquire the disease. It is further assumed that such protection against clinical disease serves to protect them also against mortality associated with epidemic influenza."

* * *

Congress has approved legislation imposing stiff Federal controls on the manufacture and sale of amphetamine and barbiturate tablets.

The American Medical Association supported the legislation which was aimed at curtailing use of the drugs as "pep pills" and "goof balls."

In requesting the legislation, Food and Drug Administration Commissioner George P. Larrick told Congress that half of the nine billion amphetamines and barbiturates manufactured annually have been sold on the black market to teen-agers, truck drivers and persons searching for a substitute for marijuana, heroin or cocaine.

The version of the legislation as finally approved left it up to the Secretary of Health, Education and Welfare whether he utilizes an advisory committee before deciding whether depressant or stimulant drugs have a bad effect on a person's personality. The AMA had recommended that this provision be mandatory.

The new law also requires detailed bookkeeping on the drugs by manufacturers and wholesalers. Druggists' sales records of the pills must

be open for inspection by FDA agents. This provision aimed at keeping track of the retail distribution of the prescription drug.

The record-keeping and inspection provisions will not apply to licensed physicians with respect to drugs received and used in the course of their practice, unless the practitioner regularly engages in dispensing the drug to his patients for which they are charged, either separately or together with charges for other professional services.

In its reports, the House and Senate committees stated that the legislation was intended "to require record-keeping and to permit inspection in the case of those physicians who maintain a supply of pharmaceuticals or medicinals in their offices from which they compound prescriptions for their patients for a fee." The House committee report contained identical language.

The new law also provides that a prescription for a depressant or stimulant drug cannot be filled or refilled more than six months after its date of issue, nor can such a prescription be refilled more than five times. However, a physician can renew the prescription either in writing or orally, if promptly reduced to writing and filed by the pharmacist filling it.

* * *

Congress has approved legislation to require a health warning on all cigaret packages.

The compromise legislation, worked out by House-Senate conferees last week, would bar any similar warning in cigaret advertising for four years.

The warning required by the legislation reads: "Caution: cigaret smoking may be hazardous to your health."

The new law leaves to the manufacturer's discretion the exact location of the warning but says it must be in a conspicuous place. It also requires that the warning must appear in conspicuous and legible type in contrast by typography, layout or color with other printed matter on the package.

The prohibition against any action by any government agency in regard to cigaret advertising applies most directly to the Federal Trade Commission.

The FTC had announced plans to require cigaret advertising to be accompanied by a health warning similar to that which the legislation requires on the package.

If no further legislation is passed by Congress by July 1, 1969, the FTC will be free to go ahead

with its advertising proposal.

During the next four years, the FTC and the Department of Health, Education and Welfare will submit periodic reports to Congress on whether the package label has any effect on cigaret consumption.

The congressional decision to require a health warning on cigaret packages stemmed largely from a report by the U.S. Surgeon General's office which linked smoking to lung cancer and other disease.

THINGS TO COME



Postgraduate Cardiology 1965

A four day program for the practicing physician will be offered by the Institute for Cardio-Pulmonary Diseases of the Scripps Clinic and Research Foundation, December 7, 8, 9 and 10, 1965, in La Jolla, California.

Seventh International Congress of Gerontology

The Seventh International Congress will be organized by the Austrian Society for Geriatrics and will meet at the Vienna Hofburg (Imperial

Castle) from June 26 to July 2, 1966. W. Doberauer, M.D., Associate Professor of the Vienna University, will be President of the Congress.

RESOLUTIONS



Resolution

Whereas, the Independence County Medical Society has suffered a great loss in the passing from this life of Dr. J. J. Monfort.

Whereas, Dr. J. J. Monfort had been a valued member of this Society for more than twenty-five years, and whereas, Dr. J. J. Monfort had been a past president of the Arkansas Medical Society and had worked tirelessly in the interest of the Society, on local, state and national levels. Be it therefore resolved that the Independence County Medical Society express to the family of Dr. J. J. Monfort its heartfelt sympathy in the loss of a loved one and that a copy of this resolution be forwarded to Dr. Monfort's family and that a copy of this be made a part of the permanent records of this Society and that a copy of this resolution be forwarded to the Journal of Arkansas Medical Society for publication in the next issue.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Mucoviscidosis or fibrocystic disease of the pancreas.

X-RAY FINDINGS: The findings are those of chronic focal obstruction and infection. The lungs are emphysematous. There is widespread irregular peribronchial infiltrate extending outward from the hila on both sides. In the left lower lung field there is an area of pneumonia. There is some fibrosis as well, particularly in the lower lung fields.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: App. 40 **RHYTHM:** Wandering Pacemaker. (?) Sinus bradycardia (?) Nodal escape.

PR: — **QRS:** .08 **QT:** .40

ABNORMAL. Tracing shows arrhythmia as described.

COMMENT: Marked depression of the S-A node is present with occasional nodal escape beats. The Q waves in II, III, aVF, preceded by P waves suggest possible previous posterior infarction.

The patient's serious heart disease, plus digitalis intoxication, was responsible for the abnormal tracing.



PERSONAL AND NEWS ITEMS

Dr. Hudson Heads Association

Dr. William A. Hudson, Harrison thoracic surgeon, has been elected to serve a two year term on the executive council of the Arkansas Public Health Association. Dr. Hudson is also the 1965 president of Boone County Medical Society.

Drs. Move to New Clinic

Dr. G. C. Evans and Dr. Bob Slaughter of Batesville have moved their practice of medicine into their new clinic in Batesville. It is located on East Harrison Street.

Memorial to Dr. Monfort

The students and faculty of the seventh class of the Batesville Practical Nurse School have placed two books in the Nurse School Library in memory of Dr. J. J. Monfort.

Dr. Kolb Elected President

Dr. James M. Kolb of Clarksville has been elected President of Aces and Deuces for 1965 at the New York City American Medical Association meeting in June. Aces and Deuces is a social organization for the state medical societies having one or two delegates to the American Medical Association.

Dr. Ellis Guest Speaker

Dr. C. R. Ellis of Malvern was the speaker at the Rotary Club meeting in Magnolia in June. His topic was "Hospitals and Laws Affecting Them in the Future".

Dr. Cole Appointed

Dr. John Cole of Malvern has been named to two committees of the State Board of Education. He has been appointed to serve on the Personnel Committee and the Committee on Rehabilitation Services for the Blind.

Dr. Teeter to Russellville

Dr. Stanley D. Teeter has joined the medical staff of the Millard-Henry Clinic in Russellville. He is a native of McGehee and a 1960 graduate of the University of Arkansas School of Medicine.

Dr. Weaver Opens Office

Dr. Robert H. Weaver has opened his office at the Gentry Medical Center in Gentry. He has joined his brother, Dr. Donald D. Weaver, in the practice of medicine.

Dr. Malone Practicing at Atkins

Dr. George Malone has opened the Atkins Clinic in Atkins. He is a former Air Force Captain who recently received his discharge.

Dr. Alford Guest at Celebration

Dr. Dale Alford of Little Rock crowned "Miss Liberty Bell" at the Marmaduke Beauty Review held at the three-day Independence Day Picnic at Marmaduke. He also made the principal address on the final day of the celebration.

Mrs. Long Is Vice President

Mrs. C. C. Long, wife of Dr. C. C. Long of Ozark, has been elected first vice president of the Woman's Auxiliary to the American Medical Association. She has long been noted for her interest and active participation in community services in Ozark.

Dr. Vaughan Opens Office

Dr. John A. Vaughan has opened his office for the practice of medicine in Malvern. He has just completed four years service as a Naval officer.

Dr. Riggs Studies Radiology

Dr. Orval E. Riggs, Jonesboro surgeon, has discontinued his practice and will study radiology at the University of Arkansas Medical Center for three years. Dr. F. M. Wilson has assumed his practice.

Dr. Clark to Conway

Dr. Robert Louis Clark has begun the practice of surgery in Conway. He is associated with his uncle, Dr. Robert L. Taylor, and his practice is limited to general and thoracic surgery. He is a 1959 graduate of the University of Arkansas Medical Center.

Dr. Beene Associate of Dr. McGinnis

Dr. Tommy Beene is now associated with Dr. Robert S. McGinnis in the McGinnis Clinic at Hughes. Dr. Beene is practicing general medicine and surgery.

Dr. Finch Practices in Forrest City

Dr. Robert M. Finch has opened his office for the practice of general medicine in Forrest City. He is a graduate of the University of Arkansas Medical Center.

Booneville Clinic Opens

The new Facundus Medical and Surgical Clinic in Booneville was opened for treatment of patients in July. It is under the operation of Dr. Bruce E. Facundus, the owner, Dr. Derwood F. Facundus and Dr. Michael D. Simmons.

Dr. Collins Elected Chief of Staff

Dr. E. Morgan Collins has been named chief of staff at Forrest Memorial Hospital in Forrest City. He will serve as chief of staff through June 30, 1966. Dr. G. A. Sexton was elected vice chief of staff and Dr. H. H. Hollis was elected secretary.

Dr. Randolph to Turrell

Dr. Jerry F. Randolph has become associated with Dr. Milton Lubin at the Lubin Clinic in Turrell. He graduated from the Medical Unit of the University of Tennessee in 1964.

Dr. Griffin Joins Clinic

The DeQueen Clinic in DeQueen has announced the association of Dr. John E. Griffin for the practice of general surgery. Dr. Griffin is a 1958 graduate of the University of Oklahoma School of Medicine.

Dr. Shannon Certified in Psychiatry

Robert F. Shannon, M.D., was certified in psychiatry by the American Board of Psychiatry and Neurology, Inc. in New Orleans in April, 1965.

R. Fred Broach, M.D., Henry H. Good, M.D., and Robert F. Shannon, M.D. have opened their office for the practice of general psychiatry in Little Rock. They are presently located at 1224 Bishop but hope to be in their permanent quarters at 12th and Bishop by late summer. Lewis W. Hyde, A.C.S.W., psychiatric social worker, is also affiliated with them.



PROCEEDINGS OF SOCIETIES

The Boone County Medical Society will honor the late Dr. Leonidas Kirby, Pioneer Harrison physician, on Friday, October 15, 1965, 5:45 P.M., in the Chamber of Commerce Building.

Dr. Eugene M. Bricker, Associate Professor of Surgery, Washington University, will speak on "Acute and Chronic Intestinal Obstruction: Current Concepts of Management."

After the medical meeting there will be a social hour and steak dinner at the Holiday Inn,

one block north from the Chamber of Commerce Building.

Many doctors and their wives who plan to see the Razorback-Texas Game Saturday, October 16, will find it convenient to spend Friday night in Harrison and travel next morning to Fayetteville—driving time, one hour and thirty minutes.

The Boone County Medical Society cordially invites the medical profession to the October 15th meeting.



OBITUARY

Dr. Henry T. Smith

Dr. Henry T. Smith, aged 80, of McGehee died June 25th. He graduated from the Tennessee Medical School in 1910 and did postgraduate work at Johns Hopkins University, Tulane University and at Chicago University. He was a Fellow of the American College of Physicians; was certified by the American Board of Internal Medicine and was a former associate professor of Medicine at the University of Arkansas Medical School. He was a past president of the Arkansas Medical Society, a member of the Southern Medical Association and the Desha County Medical Society. He was a member of the Presbyterian Church, the Rotary Club and he was a 32nd degree Mason. He is survived by one sister.



NEW MEMBERS

DR. PORTER RODGERS, JR. is a new member of White County Medical Society. A native of Searcy, Arkansas, he received his pre-med from the University of Arkansas. He was graduated from the University of Arkansas Medical Center in 1959 and he interned at Kansas University Medical Center. Dr. Rodgers' office address is 601-11 Woodruff Avenue in Searcy, Arkansas. His specialty is surgery.

Faulkner County Medical Society announces that DR. ROBERT LOUIS CLARK is a new member. He was born at Conway, Arkansas, and received his preliminary education from Hendrix College. He received his M.D. degree from the

University of Arkansas School of Medicine in 1959 and he completed his internship at the University of Arkansas Medical Center. Dr. Clark's specialty is general and thoracic surgery and his office address is 810 Parkway in Conway, Arkansas.

A new member of Greene-Clay County Medical Society is DR. ASA A. CROW. He is a native of Hamilton, Alabama, and received his preliminary education from Arkansas State College. He was graduated from the University of Arkansas Medical School in 1961 and he interned at the University of Arkansas Medical Center. Dr. Crow is a general practitioner and he has his office in Cardwell, Missouri.

DR. RETIA LYNN EDMONSON is a new member of Miller County Medical Society. A native of Horatio, Arkansas, she received her preliminary education from Henderson State Teachers College in Arkadelphia. In 1955 she was graduated from the University of Arkansas School of Medicine and she interned at Confederate Memorial Medical Center in Shreveport, Louisiana. Dr. Edmonson's address is 916 Main in Texarkana, Arkansas. Her specialty is neurological surgery.

Jefferson County Medical Society announces that DR. GEORGE EDWARD WILSON, JR. is a new member. He was born at Vake Village, Arkansas, and received his pre-med from the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1960 and he completed his internship at U.S. Air Force Hospital Lackland, Lackland Air Force Base, Texas. Dr. Wilson is an anesthesiologist and his office address is 1111 West 12th Street in Pine Bluff, Arkansas.

A new member of Sebastian County Medical Society is DR. H. JOHN PARTA. A native of Hammond, Louisiana, he received his pre-medical education from the University of Arkansas. In 1963, he was graduated from the University of Arkansas Medical School and he served his internship at Hillcrest Medical Center in Tulsa, Oklahoma. Dr. Parta is a general practitioner and his office address is 1120 Lexington in Fort Smith, Arkansas.



BOOK REVIEWS

CARDIOMYOPATHIES, CIBA Foundation Symposium edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., F.R.C.P. and Maeve O'Connor, B.A., pp. 428, illustrated, published by Little, Brown and Company, Boston, Massachusetts, 1964.

This is an exceedingly interesting book on cardiomyopathies. Approximately 317 of the 428 pages are devoted to obstructive cardiomyopathies. The remainder of the book is devoted to other cardiomyopathies as viral cardiomyopathies, Friedreich's Ataxia disease, fibroelastosis, endo-

myocardial fibrosis. Because of the possibility of surgical repair, it is reasonable to devote more space to the obstructive myocardiopathies, but to the internist, one might wish for a little different ration. In any event, the book is exceptionally interesting to the surgeon, internist, pediatrician, and radiologist. AK

THE PRACTITIONER'S ILLUSTRATED DERMATOLOGY, by Howard T. Behrman, M.D., Professor of Clinical Dermatology and Director of Dermatologic Research, New York Medical College, and Theodore A. Labow, M.D., Assistant in Dermatology, Vanderbilt Clinic, Columbia-Presbyterian Medical Center, pp. 189, illustrated, published by Grune and Stratton, Inc., New York and London, 1965.

Although this book does not cover any new material, its excellent illustrations and simple text lends itself exceptionally well to the general practitioner and to the medical student. For these two groups this book is heartily recommended. It is not an adequate reference book and it is not intended to be such. AK



Hemodynamic Effects of Oxygen in Patients With Acute Myocardial Infarction

M. Thomas, R. Malcrone, and J. P. Shillingford (Hammersmith Hosp, Ducane Rd, London) *Brit Heart J* 27:401 (May) 1965

Hemodynamic measurements were made in patients with acute myocardial infarction in a special intensive care unit. Cardiac output was measured by an indicator dilution technique using the photoelectric earpiece and Coomassie blue dye. Arterial pressure was measured directly with a fine catheter. It was observed that when the patients breathed oxygen, the arterial pressure and peripheral resistance increased, while a fall of heart rate and stroke volume caused a decrease in cardiac output. Change to breathing air resulted in decreased blood pressure and increased cardiac output.

Functional Adaptations of Right Ventricular Outflow Tract in Congenital Heart Disease

H. Watson and K. G. Lowe (Queen's College, Dundee, Scotland) *Brit Heart J* 27:408 (May) 1965

Functional adaptations in the right ventricular outflow tract are discussed in relation to the development of acquired pulmonary stenosis. It is concluded that physical forces as well as structural abnormalities may greatly influence the clinical picture and the life history of many patients with congenital heart lesions. The importance of further serial hemodynamic studies to provide fuller understanding of the natural course of many lesions is stressed, so that better advice about prognosis and optimal time for surgical treatment may be given.



Sponsored by Arkansas Tuberculosis Association

THE BACTERIOLOGY AND CHEMOTHERAPY OF CHRONIC BRONCHITIS

Drug treatment of chronic bronchitis should not necessarily be delayed until bacteriological reports are obtained. The most important of the microorganisms in this condition is Hemophilus influenzae. In long-term chemotherapy, the tetracyclines are the drugs of choice.

Logical chemotherapy must be based on sound bacteriological principles, but this does not necessarily mean that the bacteriologist must always be consulted before a drug is given. In some syndromes the probability that a particular microorganism is causative is so high that "blind" chemotherapy is permissible. Chronic bronchitis belongs to this category.

The prevalence of *H. influenzae* in patients with purulent sputum seems to remain substantially constant from year to year. In contrast, the prevalence of the pneumococcus varies widely in different years and individual isolation rates have little meaning. Further, it seems that the prevalence of pneumococci in sputum cultures does not provide a reliable guide to the true occurrence of the organism in the lung, and it has been demonstrated that pneumococci are often found in sputum, probably as a consequence of contamination from the throat. The true role of the pneumococcus in chronic bronchitis is not easy to assess but there is no doubt that its main importance concerns exacerbations. Chronic pneumococcal infection of the bronchi without coincident *H. influenzae* is common, and when antibiotics eliminate pneumococci, pus does not always disappear.

The bacteriological principles upon which chemotherapy should be based may be summarized as follows: In patients without acute exacerbation but with purulent sputum, *H. influenzae* is the outstanding pathogen and the pneumococcus is probably of minor importance; in acute

exacerbations without pneumonia, the pneumococcus assumes greater importance although its prevalence is variable from year to year; if pneumonia complicates bronchitis, there is the possibility of staphylococcal infection although the pneumococcus is the most common organism; there is no clear evidence that organisms other than *H. influenzae* and the pneumococcus are pathogenic in bronchial infections.

Therefore, the chemotherapy of patients without pneumonia should be directed against *H. influenzae* and pneumococci. Fortunately, neither organism readily develops resistance to antibiotics in common use and thus routine sensitivity tests are unnecessary. However, other problems of chemotherapy must be considered.

SELECTING CHEMOTHERAPY

Patients whose sputum is always mucoid or contains only eosinophil "pus" derive no benefit from chemotherapy whatever organisms are present. Therefore, it is necessary to be sure that true pus is present before chemotherapy is prescribed. Eosinophil "pus" is most common in patients with an allergic history.

The greatest problem is the recurrence of infection when therapy is stopped. Such recurrences are usually associated with *H. influenzae*. The rapidity of recurrence suggests relapse of the original infection, but could mean a reinfection with a different strain.

The tetracycline group of drugs have come to be considered the drugs of choice for long-term chemotherapy since they can be given by mouth and are relatively free of side effects.

In the last decade several clinical trials, have been carried out in an attempt to assess the precise value of chemotherapy. A detailed analysis of all the reports seems unnecessary since a number of general conclusions are apparent. Perhaps the most important is the attention that these trials have drawn to the care needed in interpreting results.

ASSESSING PROGRESS

The objective criteria most commonly used

J. ROBERT MAY, M.D., *British Journal of Diseases of the Chest*, April, 1965.

for assessment of progress were sputum purulence and number and duration of exacerbations. But sputum purulence and number of acute exacerbations are not necessarily linked. A patient can recover clinically from an exacerbation sufficiently to return to work although his sputum is still purulent. Likewise, a patient may have lost his pus but be unable to return to work because of increased dyspnea. In general, loss of pus will indicate control of *H. influenzae* — the basic chronic infection. Clinical improvement in an exacerbation may well be due to suppression of a pneumococcus and, since the prevalence of this organism varies from year to year, a given antibiotic may not be equally effective in different trials.

Both intermittent and continuous chemotherapy are valuable forms of treatment if the patients are properly selected. The patient who has occasional purulent sputum but is "mucoid" for most of the time is a candidate for intermittent therapy, while the one whose sputum is purulent throughout the winter *must* be given continuous therapy.

OTHER DRUGS

As regards drugs other than the tetracyclines, trials have covered phenoxy-methyl-penicillin, erythromycin, oleandomycin, novobiocin, sulphamethoxypyridazine, and "sulphatriad." Taking account of all the factors, there can be no doubt that tetracycline itself is usually preferred. Sometimes a combination of tetracycline with another antibiotic will succeed where tetracycline alone fails. Tetracycline in concentrations that can be attained in tissues acts by bacteriostasis.

Bactericidal therapy is theoretically possible with ampicillin. It has been found that the highest concentrations appear in the sputum when pus is present, and as the inflammation subsides the level falls until it can often no longer be measured. The crucial factor in treatment is that the infecting organism should be killed before the sputum concentration falls to the ineffective level. As this fall may occur in only a day or so, it is essential that treatment should be directed toward attaining very high sputum levels in the first few hours. It is clear that the sputum as well as the tissue must be sterilized if relapse is to be prevented. Failure of the antibiotic to penetrate into mucoid bronchial secretions may explain the failure of bacteriostatic therapy to give more lasting benefit. If the microorganisms in the secretions are inaccessible to the antibiotic

and there are no phagocytes present, there is no reason why they should not remain viable indefinitely and able to cause a fresh infection as soon as the bronchial tissue is freed from protective antibiotic.



Unexplained Dyspnea and Shrinking Lungs in Systemic Lupus Erythematosus

B. I. Hoffbrand and E. R. Beck (University College Hosp, London) *Brit Med J* 1:1273 (May 15) 1965

Attention is drawn to the high incidence in systemic lupus erythematosus (SLE) of dyspnea unexplained by clinical and radiological findings. Such dyspnea occurred in eight of a personal series of 24 cases diagnosed as SLE according to stated criteria. Clinical findings, lung function tests, and the well-recognized occurrence of high, sluggishly moving diaphragms suggest that this dyspnea is associated with changes in the mechanical properties of the lungs. It is suggested on the basis of previous pathological findings that these changes are due to widespread alveolar atelectasis.

Pharmacologic Treatment of Coma of Diverse Origin

R. J. Hoagland (US Army Medical Research Laboratory, Fort Knox, Ky) *Amer J Med Sci* 249:623 (June) 1965

Coma due to head trauma, gross brain lesions, liver and kidney diseases, bacterial toxins and non-sedative chemicals, was dramatically ended by methylphenidate, an analeptic, given intravenously. Neurological examinations were made possible by using this medication to restore consciousness or to improve mental acuity. Use of this drug by medical officers and police physicians is recommended to facilitate questioning of stuporous or comatose persons regarding matters of military or criminal importance. Sixty patients in coma following ingestion of depressants, with suicidal intent, were treated with methylphenidate. All survived; 28% became conscious one to ten minutes after initial injection. Effects of barbiturates, alcohol, phenothiazines, psychotropic drugs, and many sedatives (including glutethimide, chlorthalidoxepoxide, and diazepam) were overcome by methylphenidate. The pharmacologic treatment of coma is recommended in addition to other methods of treatment—although in many cases it obviated need for tracheostomy.

October, 1965

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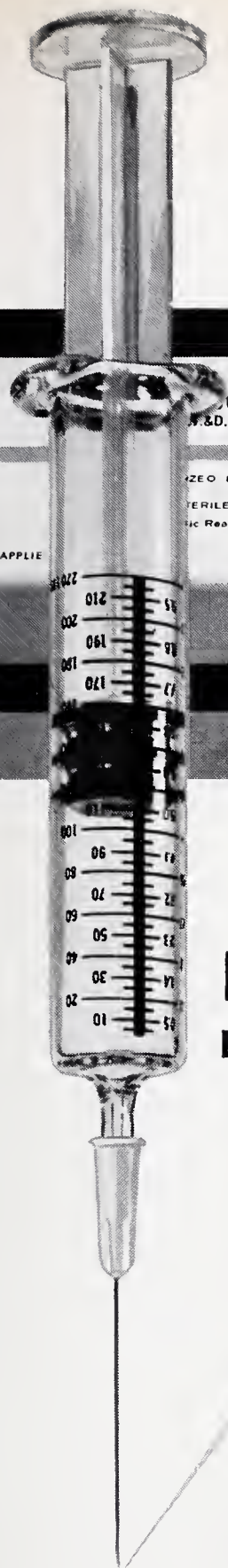
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Evasion of Responsibility By Physicians in Planning Health Services

a memo to each Arkansas physician from

William G. Reese, M.D.*

Physicians are allegedly greatly concerned about patterns of medical care, but this concern is insufficiently translated into action. Most citizens are greatly interested in the availability of medical attention for themselves and their families. Increasingly, citizens look to the government to provide services not otherwise available, and this trend is particularly evident in their pursuit of health. The medical profession is alarmed by this trend and many physicians have joined to combat the inexorable increase in government medicine. Perhaps like U.S. foreign policy, the stance of organized medicine has often been defensive. Fortunately, medical societies do occasionally initiate imaginative, constructive, positive programs to meet health needs in the best spirit of the free enterprise system.

Probably most physicians agree that the government has necessary and legitimate interest in such health activities as public health, medical service for the service-connected veteran, support of research and support of medical education. Probably few object to governmental assistance in providing medical services for the medically indigent. Obviously the government can and should render necessary support in alternate ways, and the alternatives need careful study and appropriate action by the medical profession.

To an increasing extent, since the 'thirties, health and welfare have become the direct concern of government for administration and/or

financing. In the 'forties the medical services of the Veterans Administration expanded greatly to supply direct medical care to a significant proportion of the population. Welfare and rehabilitation programs are increasingly involved in financing or providing medical service for special segments of the population, and all signs indicate that these programs will increase in size and cost.** It appears that much of the previous private sector of medicine has become public, and the voters repeatedly endorse this trend.

The medical profession has almost completely ignored responsibility for planning psychiatric services. I hope to show that this abdication is ill-advised and unnecessary and that there is great urgency in correcting this mass evasion. The potential errors in planning and execution of plans may be irreversible.

Organized citizens' groups have shown a healthy and increasingly effective interest in improved services for the mentally ill and the mentally retarded. For example, the Arkansas Association for Mental Health is developing rapidly and several local chapters have been formed. These local chapters need the assistance and guidance of professionals, certainly including local physicians.

In Arkansas, as in the other states, active plans are being made for increased service for mentally ill and for mentally retarded citizens.† These plans have far-reaching implications for all physicians in our state, but most physicians have shown little interest in helping to fashion the plans, despite the fact that the AMA has sponsored a First and a Second Congress on Mental Health² and despite the fact that the Subcommittee on Mental Health of the Arkansas Medical Society has

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**For example, Public Law 88-164 authorizes grants for construction of community mental health centers, and research centers and facilities for the mentally retarded.

†Official planning committees are currently designing plans for mental health and mental retardation in Arkansas. These planning activities are partially supported by federal funds administered through the Arkansas Department of Health. The mental health planning project is in the second year of operation and the mental retardation planning project is in its first year. Further information may be obtained from the state Department of Health.

worked vigorously to enlist the participation of the membership.³ Apparently there is little concern, for example, about the fact that psychiatric practice may become increasingly socialized and little interest in modifying this trend.

The needs for additional psychiatric services in Arkansas are incontrovertible as every practicing physician knows. When you refer a patient to a psychiatrist how long does he wait for an appointment? How far does he have to travel? How successful are you in getting an emotionally disturbed child hospitalized—or for that matter seen in office or clinic? Do you desire more or better services? Are you willing to work toward providing the answers? Are you interested in helping to guide the development?

Despite conspicuous deficiencies, psychiatric services are improving. The Arkansas State Hospital is making remarkable progress as a result of excellent leadership, strong support from the executive and legislature bodies of the State, and federal financial assistance. Their construction program is tangible evidence of this progress. Of greater importance has been the marked strengthening of staff by recruitment and training. Their successful psychiatric residency training program is an excellent example of sound hospital development. It is also a fine example of interagency cooperation, with considerable sharing of staff and facilities in the three psychiatric residencies of the Arkansas State Hospital, the Veterans Administration Hospital and the University of Arkansas Medical Center.

The Department of Psychiatry, University of Arkansas Medical Center, has the traditional functions of participating in the education of medical students and nursing students, providing post-graduate specialty training in psychiatry and in clinical psychology, and engaging in active research. In addition, the Department participates actively with the Department of Pediatrics in the training of pediatric house staff in psychiatric practices and principles useful in child medicine. Currently, the Department is establishing a program for continuing education of selected and selecting medical practitioners.

For the expansion of psychiatric services, manpower is a crucial factor and the quantity and quality of available psychiatrists is of central significance. Data obtained in May, 1964 from the data processing service of the American Psychiatric Association, based on their membership, in-

dicates that 102 practicing psychiatrists graduated from the University of Arkansas School of Medicine between the years 1925-1960. Of these 40% are certified in psychiatry by the American Board of Psychiatry and Neurology. Distribution by year of graduation is shown on the first line of the following table, with the addition of known current residents in the second.

1925- 1929	1930- 1934	1935- 1939	1940- 1944	1945- 1949	1950- 1954	1955- 1959
7	9	17	20	16	13	20
7	9	17	23	19	21	23

Of our 102 psychiatrist alumni, 26 were in Arkansas with the following distribution: VA Staff—11, State Hospital Staff—6, private practice—5, medical school faculty—2, community clinic—1, and Vocational Rehabilitation service—1. For psychiatry, we “exported” 76 graduates to other states and “imported” 28 for a net loss of 48. In recent years more of our alumni are taking psychiatric residency in this state, and we expect this to have a favorable effect on our “balance of trade,” but it would seem imperative to provide more attractive opportunities for psychiatrists in Arkansas.

There can be no doubt that Arkansas needs more psychiatrists. In 1961, Arkansas had 54 psychiatrists for a ratio of 3.02/1,000,000 population as compared with 5.96 for the United States and 15.31 for New York.¹ Most of the Arkansas psychiatrists were located in the metropolitan area of greater Little Rock, and about half of these were employed by VA Consolidated Hospital, North Little Rock Division, which admits patients from several states. Thus Arkansas needs *more* psychiatrists and a dispersion of these to other communities throughout the state. The number of psychiatrists in the state may be increased by (1) increasing the number of physicians trained, without reducing the ratio entering psychiatry, (2) increasing the ratio of graduates entering psychiatry, (3) by increased retention of our alumni, or (4) increasing recruitment of psychiatrists who are graduates of other schools. Relative to the first method, it should be possible to decrease the medical school drop out rate by general improvement of pre-professional training at all levels and, by earlier and more effective recruitment of promising candidates (particularly women) into the health sciences.

On the positive side, 25 psychiatric residents were in training in the University program and affiliated programs during the year 1963-64, and

16 of these were alumni. The APA data indicated that six of our alumni were in training in other programs.

Based on known residents, at least six percent of our students who have graduated since the Department of Psychiatry was established, have entered psychiatric residencies. This figure should be evaluated in relation to the fact that our school has properly emphasized the training of general practitioners. In 1963, two-thirds of our alumni practicing in Arkansas were in general practice,[‡] in marked contrast to the experience of those schools which produce a high percentage of specialists.

The utilization of trained manpower in psychiatry and allied disciplines is of central concern to all physicians. What state and private facilities should be provided for psychiatric care? How will these be financed? What are appropriate standards for these facilities and who should determine these? Which aspects of psychiatric care should be delegated to non-psychiatrists and non-physicians and who should supervise such activities?

The federal government, through the National Institute of Mental Health, strongly supports the concept that psychiatric care should be expanded through the development of comprehensive Community Mental Health Centers (CCMHC) and funds are available (as provided by the Community Mental Health Centers Act of 1963, Title II, Public Law 88-164) for the construction of such facilities to provide the community served with inpatient services, outpatient services, diagnostic services, rehabilitation services, pre-care and after-care, training, research and evaluation. This proposed pattern of care is based on the laudable principles that the patient should be provided continuity of care with minimal dislocation from home and family, that such care should be provided without regard to financial means, and that prevention should have high priority. Prevention operates at three levels. Primary prevention entails the prevention of illness through such devices as planned parenthood, obstetrical excellence including optimum pre-natal care and counseling, optimal post-natal care including attention to emotional development, and the detection and elimination of social and economic forces inimical to mental health. In each of these areas much is known but far more must be determined

by research. Secondary prevention involves early detection and effective intervention as illness begins and tertiary prevention implies the prevention of relapse and the maintenance of maximal recovery through appropriate measures. These goals of the Comprehensive Community Mental Health Center are certainly desirable; some are attainable now; and we hope that eventually the ideal may become the practical.

The CCMHC concept contains one major hazard, but this is a preventable hazard if we all accept the responsibility of full participation in further planning. The major hazard is the potential re-isolation of psychiatry from medicine: first, by geographical and administrative separation; and second, by disparate financial provisions for care such that psychiatric care is publicly financed regardless of means and other medical care is privately supported for patients who can afford to pay directly or through insurance. This would reverse significant trends in the opposite direction.

Modern medicine began to accept the mentally ill as patients about 200 years ago. Prior to the first World War mental patients and their psychiatrists were isolated in large mental hospitals which were largely custodial. Between the World Wars this pattern changed little and there were few private practicing psychiatrists and few outpatient psychiatric clinics. Following the second World War, the Veterans Administration established model psychiatric hospitals and the State hospitals made great improvements. The creation of the National Institute of Mental Health in 1949 provided notable impetus to psychiatric development with increasing support to psychiatric education, research, and demonstration projects. In the past twenty years psychiatry has become a significant part of the curriculum of most medical schools and the number of graduates specializing in psychiatry has increased. In the post-war period many psychiatrists entered private practice. The private sector of psychiatry increased relatively, as the private sector of the rest of clinical medicine decreased, relative to the public sector. An increasing percentage of general hospitals established psychiatric services. An ever increasing number of non-psychiatrist physicians became psychiatrically sophisticated. This increasing incorporation of psychiatry by medicine has far reaching significance. Effective union is far from complete, and enhancement of this

[‡]This statement is based on statistics provided by Dean Winston K. Shorey from his unpublished study.

trend should have high priority.

I therefore make a plea for the development of comprehensive community *medical* centers which include the services assigned to the CCMHC. (None of the provisions of the Community Mental Health Centers Act prevent this.) In many communities the nucleus of such a center is present in the form of a general hospital. I believe that needed services should be provided without regard to the patient's ability to pay and that insurance plans should be developed maximally. Many psychiatric patients may need subsidy by voluntary and state funds and some psychiatrists in such a center may need partial salary, but the psychiatrists should be as dependent as feasible upon private patient fees. Such medical centers should be operated by local governing boards with appropriate provision to insure proper standards.

One of the major stumbling blocks to the establishment of coordinated state psychiatric services in Arkansas has been the marked division of responsibility for such services,³ with separate official boards for the Arkansas State Hospital, the Children's Colony, *each* of the Training Schools, and a separate Commission on Alcoholism. The Department of Education is responsible for some aspects of mental illness and mental retardation. The Department of Health is the "Mental Health Authority" with designated responsibility for mental health planning and mental retardation planning.

Arkansas physicians have a considerable stake in medical planning. They have immediate opportunity to help fashion plans for psychiatric care. Effective realization of the plans are greatly dependent upon an increased supply of psychiatrists and increased psychiatric proficiency of general practitioners, pediatricians and other

physicians. The Arkansas Medical Society should elevate the Subcommittee on Mental Health to full committee status and every county society should appoint a Mental Health Committee or a Mental Health Chairman to work closely with the State Committee on Mental Health. Each member of each county society should participate actively in all aspects of society programs. Physicians should work with their lay mental health societies as they do with other groups supporting health care.

In summary, I have contended that the directions of medical care programs are of great significance to every physician, that each physician should express his interest by intelligent participation through mechanisms provided by the AMA and its component societies, and that the guiding philosophy should be notable for constructive planning to meet the health needs of each community. I have viewed with alarm the inactivity of physicians in planning for psychiatric services. I have emphasized the necessity of immediate participation in psychiatric planning and have attempted to indicate some of the hazards of continued disregard of this responsibility and some of the advantages of accepting the responsibility. Specifically, I have urged that we add psychiatric units to some of the existing community general hospitals rather than build isolated regional mental hospitals.

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A Broad Spectrum of Leukoderma Acquisitum Centrifugum

A. W. Kopf (562 First Ave, New York), S. D. Morrill, and I. Silberberg *Arch Derm* 92:14 (July) 1965

A series of diverse neuroectodermally derived skin tumors associated with halos of leukoderma is reported. Clinically, these lesions have in common a centrally placed, usually pigmented, tumor encircled by a zone of hypopigmentation.

Histologically, the central tumors included nevus-cell nevus, neuroid nevus, blue nevus, neurofibroma, and malignant melanoma. Immunohistochemical studies using the fluorescent antibody technique failed to reveal 7S γ -globulins in the patients' serums directed against the tumor cells. The relationship of developing hypopigmentation to the spontaneous regression of cutaneous neuroectodermally derived tumors is discussed.

A Physiological Basis for the Surgical Management of Peptic Ulceration*

John W. Hard, M.D.*

Since 1881, when Woelfler performed the first gastroenterostomy, few disorders affecting the human body have been involved in greater controversy than has the peptic ulcer. Because controversy still exists in the surgical management of this disease, I feel that it would be pertinent, particularly in the light of the increasing knowledge coming from both laboratory and clinical studies, to review the mechanisms known to be involved in the formation of peptic ulcerations so that we might have a sound psychological basis for selecting the type of surgical procedure which will prove to be the most effective.

In the beginning, we might do well to define the purposes of surgical therapy in terms of what constitutes ideal therapeutic achievement. First of all, the ideal surgical therapy would either remove the ulcer or result in its healing and permit no recurrence. Secondly, such an operation should be designed to preserve as normal as possible the digestive function of the body, and thirdly, such therapy should have low mortality and not result in any appreciable morbidity. Now with these goals in mind, let us review briefly some of the anatomy and physiology of the human stomach as it applies to the development of a peptic ulcer.

We are all familiar with the gross anatomy of the stomach which extends from the cardiac orifice to the pyloric orifice and consists of the fundus, the corpus, and the antrum. However, the exact delineation of these zones of the stomach are very much in doubt and particularly has this been true of the pyloric antrum. The older anatomy texts have described the antrum as being that portion of the stomach extending from the incisura angularis on the lesser curvature and the sulcus intermedius on the greater curvature to the duodenopyloric constriction. More recently, studies have shown rather conclusively that the gastric antrum is, in fact, considerably larger and extends from the pylorus upwards along the lesser curvature approximately forty-four percent of the distance between the pylorus and the cardia and

only twelve percent of the distance along the greater curvature.

A study of the microscopic anatomy of the stomach reveals that the greater part of the stomach mucosa is lined with parietal cells which secrete hydrochloric acid. These cells are found chiefly in the corpus and the fundus. Along with the parietal cells, in the same location, we also find the chief cells which secrete pepsinogen. Pepsinogen, upon release, is promptly converted to pepsin which is a proteolytic enzyme enormously enhancing the hydrolytic effect of the acid. However, since pepsin is invariably present with the acid and because variations in the amount of pepsin secreted have not been shown to be significant, for all practical purposes, we can confine our attention to the acid. The cells within the pyloric antrum are primarily mucous secreting cells but, in addition, the antrum is the site of a hormone, Gastrin, discovered in 1906 by Edkins and is thought to be produced by a modified nerve cell in the mucosa of the antrum. The two most important stimulatory effects on gastrin production are distention of the gastric antrum and direct contact with food.

Out of Pavlov's work at the beginning of the century came the concept that the stimuli governing gastric secretion could be divided into three stages, cephalic, gastric, and intestinal. The cephalic phase is mediated through the vagus nerves and it has been shown that stimulation of the vagus increases acid secretion and division of the vagi diminishes acid secretion. Dragstedt and his workers were able to show that the acid secretion stimulated by the cephalic phase is a continuous process and have also shown that patients with duodenal ulcers secrete much higher quantities of hydrochloric acid by means of the cephalic phase than do non-ulcer patients. In the normal subject, the cephalic phase accounts for between ten and twenty milliequivalents of hydrochloric acid in a twelve hour period at night and a little over one milliequivalent per hour in the waking stage or approximately forty-five percent of all gastric secretion. Both Dragstedt and

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Wangenstein determined that in patients with duodenal ulcers, this acid secretion was from three to ten times these normal amounts in the fasting stomach and concluded that duodenal ulcers were a result of this cephalic or vagal hypersecretion.

The gastric phase of acid secretion is a humoral mechanism, mediated by the hormone gastrin which is released by the direct contact of food with the gastric mucosa or by distention of the antrum. In the normal human stomach, the gastric phase is also responsible for approximately forty-five percent of the total acid production.

The intestinal phase, which accounts for only about ten per cent of the acid secretion, is mediated by the release of certain secretagogues which act as a humoral mechanism.

Despite these advances in the understanding of gastric physiology, the question of pathogenesis of the peptic ulcer remained unanswered because not all patients with duodenal ulcers were found to have excessive nocturnal hypersecretion of acid and most patients with gastric ulcers were found to have normal or even low concentrations of hydrochloric acid. The logical answer that appeared to most investigators was that in patients with a peptic ulcer, a local decrease in the resistance of an area of the gastric or duodenal mucosa must precede the development of the ulcer and it has been suggested that this decrease in resistance may be caused by a localized area of ischemia due to thrombosis or embolism in tiny branches of the gastric or duodenal arteries, by local vascular spasm, by local allergy and by many other postulated causes such as anemia, malnutrition or vitamin deficiencies. However, when this problem was taken to the laboratory, it was discovered that there are no end arteries in the coeliac circulation and they were unable to produce a localized ischemic area because of the abundant collateral circulation. It was found that localized destruction of the mucosa by cautery would produce an acute ulcer in laboratory animals but these invariably healed within a period of six to eight weeks and had no resemblance to the typical chronic peptic ulcer which occurs in man. Dragstedt points out that one explanation for the failure of the earlier workers to produce the typical chronic ulcer in the laboratory is that they failed to make a distinction between gastric content and gastric juice. The gastric content consists not only of gastric juice but also of various amounts of food, saliva, mucous being secreted

from the pyloric antrum, and even regurgitated secretions from the duodenum, all of which tend to buffer and dilute the pure fundic secretion. However, when these buffering agents are present in insufficient amounts or whenever an excessive secretion of pure gastric juice occurs, then the gastric content approximates the pure fundic secretion and an ulcer forms which, if maintained in contact with this highly concentrated gastric content, develops into the typical chronic, progressive ulcer. This can be reproduced in the laboratory very readily by diversion of the alkaline duodenal content, by the stimulation of excessive secretion using histamine and beeswax injections, or by antral isolation procedures.

Although it is exceedingly doubtful that a local decrease in resistance of the gastric or duodenal mucosa can account for any significant number of the peptic ulcers seen in man, there is a suggestion that ulcerogenic agents such as cortisone may produce a local effect since there is no evidence that they directly stimulate any increase in hydrochloric acid production. On the other hand, Menguy has suggested that the ulcerogenic effect of cortisone may be due to a depression of mucous secretion by the antrum which would render the mucosa more susceptible to the corrosive properties of the acid. This is but to point out that our knowledge of gastric physiology does not yet fully explain the pathogenesis of all peptic ulcers.

A review of the history of the surgical approach to peptic ulcers is essential so that we may analyze the causes of previous successes and failures before we can formulate a plan of surgical therapy. When Woelfler performed the first gastroenterostomy in 1881, he did it to by-pass an obstructing gastric carcinoma. However, the operation immediately attracted the attention of many surgeons as a possible means of treating duodenal ulcer by diverting the gastric juices away from the ulcer. Most of the early reports on this procedure gave evidence of favorable results but shortly after the turn of the century, experimental work first began to suggest that gastroenterostomy was not an adequate procedure and by 1925, a recurrence rate of about thirty-four percent was being reported both in America and in Europe. In the light of present day knowledge, it is apparent that gastroenterostomy is very unsatisfactory because it has no effect upon the cephalic phase of gastric secretion. Its only desirable result was to decrease the gastric phase of secretion by pre-

venting antral stasis. While this is important, as it has been well established that the presence of food, distention, or an increase in pH all stimulate the antrum and result in an increased production of hydrochloric acid, since it is the cephalic phase of gastric secretion which has been incriminated in the development of duodenal ulcers, it is obvious that this procedure is inadequate.

Although Bilroth performed the first subtotal gastrectomy in the same year that his student, Woelfler, performed the gastroenterostomy, this operation largely fell into disfavor until well into the twentieth century both because the physiological basis of this operation for ulcer was not understood and because the operative mortality was excessively high. Because of lack of understanding of the physiology of the stomach, Bilroth and his students were advocating a limited resection which again affected the gastric phase of acid secretion by removing the antrum but did not in any way reduce the vagal stimulation and did not remove enough of the parietal cells of the stomach to effectively diminish the hydrochloric acid production.

After Pavlov's work on gastric secretion had been accepted, it was apparent that wider resection was the necessary ingredient to protect the patient adequately from recurrent ulceration; but for many years, the exact extent of this resection necessary remained controversial. In the early 1940s, Wangensteen and his co-workers concluded that a seventy-five percent resection was necessary to give adequate protection. The effectiveness of this magnitude of resection in preventing ulcer recurrence was rapidly confirmed by almost all workers but, at the same time, it was becoming apparent that this extensive resection was associated with a very significant proportion of undesirable side effects.

By 1940, Dragstedt had become sufficiently impressed by the laboratory evidence incriminating vagal hyperactivity in the pathogenesis of duodenal ulcer that he started his first series using bilateral truncal vagotomy as the sole operative procedure to cure duodenal ulcers and was delighted to find both clinical and radiological evidence of the ulcers healing promptly. However, within a few years, this enthusiasm was short lived as several of their original patients developed gastric ulcers. It became apparent then, that although the cephalic phase of gastric secre-

tion had been eliminated, the gastric phase not only remained operative but was stimulated due to the antral stasis which resulted from the vagotomy. By 1947, Dragstedt and his group were recommending a drainage procedure in association with truncal vagotomy to prevent the ulcer diathesis.

Other groups have confirmed the effectiveness of this approach so that today most medical centers advocate vagotomy but may vary in their interpretation of what is the best drainage procedure. The most popular procedures used currently are pyloroplasty which may be either of the Heineke-Mikulicz or the Finney technique, gastrojejunostomy, and distal gastrectomy or antrectomy utilizing either a gastroduodenal or a gastrojejunal anastomosis.

Keeping in mind the aims of the ideal operation for peptic ulceration and considering the known physiological mechanisms involved, I think the operation which best meets these criteria as an elective procedure in the good risk patient is a bilateral truncal vagotomy coupled with antrectomy utilizing the gastroduodenal restoration. This resection will eliminate both the cephalic and gastric phases of secretion, still leaving an adequate stomach reservoir which will better permit the patient to regain normal weight. I much prefer the gastroduodenal restoration over a gastrojejunostomy in that there is less disturbance of normal gastrointestinal function and it avoids the creation of a blind loop which may add both to morbidity and mortality. This operation is technically easy to perform and appears to have as low or lower morbidity when compared to other procedures and an acceptably low rate of ulcer recurrence.

I have reserved pyloroplasty or gastroenterostomy combined with vagotomy for the poor risk patient or the emergency operation or where any factors might render difficult a secure anastomosis. I believe these to be the procedures of choice in most instances of acute perforation and acute bleeding. Despite the initial evidence of success, I still feel that time will indicate that simple drainage without resection is not wholly satisfactory and I think this feeling is already being borne out by the increasing reports of recurrent bleeding in those patients treated with suture ligation of the bleeding ulcer combined with vagotomy and pyloroplasty. I feel certain that as our knowledge of gastrointestinal physiology in-

creases, we will be able to correct our present day deficiencies in surgery and ultimately, the ideal aim will be achieved.

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Non-Vibrio Cholera

- J. Lindenbaum et al. (A. S. Benenson, Pakistan-SEATO Cholera Research Laboratory, Dacca, East Pakistan), *Lancet* 1:1081-1083 (May 22) 1965

In February and March 1964, during a season in which the incidence of cholera in Dacca usually falls, a number of patients were admitted to the ward of the Pakistan-SEATO Cholera Research Laboratory after an acute illness of less than 48 hours' duration, with circulatory collapse and copious rice-water stools. In most of these cases, no evidence for *Vibrio cholerae* infection was demonstrable by repeated bacteriological culture, dark-field examination, and immunological methods. Fifteen such patients, in whom bacteriological evidence of cholera infection was lacking, were admitted with profound dehydration, completely collapsed, without recordable pulse or blood pressure. An additional 29 bacteriologically negative patients were admitted with moderately severe dehydration and watery diarrhea. During the same period, a total of 14 patients with bacteriologically proven cholera were admitted. Thus a cholera-like illness without bacteriological evidence of cholera infection was more than twice as common as cholera itself. The duration and volume of watery diarrhea was usually less in non-vibrio cholera than in cases of true cholera. In a

few cases, infection with noncholera vibrios was associated with the syndrome; in most, no pathogen was recovered.

Empyema Due to *Hemophilus influenzae* in Infants and Children

- H. D. Riley, Jr., and E. C. Bracken (Children's Memorial Hosp, University of Oklahoma Medical Center, Oklahoma City) *Amer J Dis Child* 110:24 (July) 1965

Empyema due to *Hemophilus influenzae* has been reported only rarely. Of 991 cases reported in the literature during the preantibiotic period, no case due to *H influenzae* was observed. In two recently reported series of empyema in infants and children totaling 171 cases observed since 1944, only one case was due to *H influenzae*. This report describes the cases of two children with empyema due to this organism. In addition, during the four-year period in which these children were observed, two additional patients with empyema due to *H influenzae* in association with other pathogens were encountered. *H influenzae* empyema may occur in older children as well as infants and, in contrast to certain other infections with this organism, empyema due to *H influenzae* may be more common than is generally suspected, and special media should be used for bacteriological study to confirm the diagnosis.

SOCIAL REALITY: A Necessary Dimension to Program

George W. Magner, Ph.D., ACSW

One of the very nice things about this type of institute is the freedom allowed the speaker in relation to the topic. As an administrator of a large department in a rather complex teaching and research center, I might have chosen the realm of administration. This is one of my first loves—as my staff says, I am one of the few people who can develop a real investment in departmental manuals. However, I doubt that you would find manuals very exciting this morning, so I will not burden you with this topic.

My next thoughts turned to the range of programs in which, as a teaching consultant, I have had the opportunity to participate. Unfortunately, however, while this leaves me conversant with a range of subjects, it does not necessarily make me an expert on any of them.

The subject on which I finally settled is stated in the title of this paper—Social Reality: A Necessary Dimension to Program. I chose this topic because, as a social worker, I believe I have the right and perhaps the obligation to speak to all of you on the matter of social reality. By social reality, I refer to no original or complex conceptualization. I refer very simply and directly to the real world about us—the world in which our hospitals, our clinics and our social agencies operate—the world to which the patient must return once we have finished with our particular brand of therapy—and, perhaps most important, the world which sets for the patient those roles and those standards to which he is expected to conform.

Today, we are faced with some awesome decisions as to the direction of our mental health programs. Never before have we had the resources and the support to launch an all-out attack on the broad problems related to mental health and illness. Of this attack, many are optimistic. We are drawn pictures of completely depopulated mental hospitals—we hear of a much more effective integration of hospital and community—and of continuity of service or continuum of care.

We work, then, in exciting times, and perhaps

I should not tarnish this by introducing the rather mundane topic of social reality. However, this is my task and I shall try to accomplish it without making any less exciting the paths from which we have to choose.

I will contain my remarks to three major areas. The first will be social reality as it pertains to broad mental health programming. The second as it pertains to the training of mental health personnel, and the third in relation to institutional or agency treatment programs.

Social Reality and Broad Mental Health Programs

At the broad program level, I think we are all aware that much of the planning is based on early treatment, quick release and on our capacity to move patients from institutions back to the community. In this regard, I suggest we must pay increased attention to the current social and economic reality with which our ex-patients are to be faced. We talk, for example, of depopulating many of the large mental hospitals and schools for the retarded—and perhaps we can. We no longer expect cures or await complete personality transformation as a result of our prescribed therapies. We do know, however, that social functioning can be restored in many instances. We also know that many of our chronic patients can be equally chronic and equally predictable outside a hospital. Depopulation, then, may be less a fantasy than some of us were inclined to believe.

The dimension I want to add pertains to the fact that when release is achieved the institution no longer remains the patient's social reality, though it may have been so for many, many years. We must recognize that such things as depopulation of hospitals will have a tremendous impact on the various communities to which our patients are released—and that this impact will be reflected in the manner in which our patients are received.

I want to make two points about social reality in regard to such broad programming. The first is to stress the vulnerability of our client and the second to stress the vulnerability of his social

system. As we have wisely and realistically sought to eliminate the use of the word "cure", we must also be more aware that many—and perhaps a majority—of released patients (especially long term patients) will at best be able to achieve only a marginal or sub-marginal level of adaptation outside the hospital. Statistics on release and re-admission rates are not sufficient for program planning—we must be ready to incorporate and to use information on the manner in which patients adapt—on the social stresses to which they are subjected—and about the social roles for which they are often so inadequately prepared. There is evidence to suggest that while many make it on a self-dependent basis, others can make it only if they are supported in a dependent or semi-dependent fashion.

To this, which simply reaffirms the vulnerability of our client, I would add my second point on the vulnerability of his social systems or social organization. The fabric of society is not all woven in a tightly knit and firmly related pattern. I will suggest no direct correlation between social disorganization and psychiatric disorders. I will say that most of the persons with whom we deal in our institutions and agencies come to us from, and will return to, sectors of society which are themselves highly vulnerable and therefore unable to firmly bolster the individual whose social functioning is faltering. We must be aware that in these sectors, the institutions which pattern our affairs, which support our conduct and our functioning, and which impart strength to the individual and the family—these institutions are very often not up to this purpose. I refer very specifically to the fact that many of our clients will return to neighborhoods in transition, to rural areas which no longer can support them, to areas which organized agencies and often even the organized religious groups have abandoned, to sub-standard educational systems, to job markets already made brutally competitive by the thrust of automation, to unsatisfactory housing, and to areas barren of social, recreational and cultural facilities. I suggest, then, that we are faced with this less than optimistic social reality—of many persons who are almost pathetically vulnerable returning to a social climate which is equally vulnerable.

My saying all this is no answer—but I think that, in terms of broad planning, there are some answers, if we can begin to modify our own expecta-

tations and our own approaches. We must relate differently to the communities with which we are seeking to identify and integrate. It is not necessarily most important to know that there exists a mental health clinic to which our former patients can be referred for ongoing psychotherapy—this may be least important since many such clinics will not take these patients anyway.

It may be much more important to develop effective working relationships with the local Department of Public Welfare on whom the patient may be economically dependent—or with local church and community groups to which the patient may have to look for social and recreational opportunities—or with community agencies sophisticated in the ways of business on which our patient may have to rely for even a chance to work.

These are not new concepts—and we are carrying out some of them very well. I say to all of you though, and especially the social workers present, that we might again borrow from the past. We might recall the early experience of the settlement house movement in this country. These agencies were successful because they were very aware and closely identified with the needs and problems of the client and his society. Settlements were established where the recipients lived. Help offered was task oriented and two-fold in nature—aimed at enhancing the functional capacity of the individual or family, and aimed at bolstering the schools, the social centers, the churches—in short those institutions essential to the life of all of us.

To Repeat, I am suggesting that our program planning must be built on as broad and realistic a base as possible—that even the addition of part-time hospitals and half-way houses and the range of other facilities will not necessarily bring about comprehensive care unless these, too, are in touch with the social reality of our target population. We must accept the fact that many of these people are genuine social misfits—and that the very things of which our lives are made—work, play, social relations, etc.—pose innumerable problems for them. If we can accept this and adequately delineate the patient's social reality, we can address ourselves to helping him achieve in those areas so necessary to his survival.

Social Reality and Training

The view I have been expressing extends also to our training centers for psychiatry, our schools of social work, our departments of psychology and others. As we teach our young practitioners, we retain treatment models which demand a certain capacity to articulate, to communicate in a fashion which is most comfortable to the therapist. How often do we exclude from our training programs those clients or patients who cannot meet our criteria as to what constitutes a good teaching case? We are more likely to insist that applicants conform to our standards, with little thought of our changing to meet their needs. We need also to give thought to the attitudes and values which are transmitted in this fashion. I teach in a school of social work in the area of social welfare organization and administration. This past semester we were discussing the field of corrections and the rather general failure of our current treatment techniques to bring about any appreciable change in the behavior of either juvenile or adult offenders. I rather casually (and perhaps in not the best of taste) commented that the majority of people in prisons were essentially social slobs. I sensed some uneasiness, but it wasn't until the next session that someone questioned this terminology and my attitude—which they viewed as untherapeutic.

I granted that my term could have been a kinder one. However, what the students hadn't yet realized is that our effectiveness with such persons is limited until we can truly empathize with them and attain an understanding which enables us to be comfortable enough to relate to them as they really are. The offenders of whom we were speaking were not acting out neurotic conflicts. They were acting out of a dearth of opportunities, out of a lifetime barren of positive emotional experiences, and out of the anger which accompanies such impoverishment. The students were familiar with slums and with the other destructive social elements—they had not yet experienced the connection as to how such elements can shape and influence the person and the personality.

We find the same true of medical students. With them, I purposefully raise issues such as public assistance, and, especially, aid to dependent children. Often coming from a clerkship in our sprawling Cook County Hospital, they display attitudes and opinions that one can only hope will

be tempered by time and by later experience. Illegitimacy is a prime target and is attacked with righteous indignation. What we seek to do, in a very small way, is to tie such phenomena to something other than immorality or depravity. We try to tie it, in part at least, to that of which I have been speaking—social reality. We neither apologize for nor condemn such behavior. We do try to explain it—to show that out of impoverishment and deprivation of such magnitude, sexual relations become not an act of pleasure alone but represent often no more than a desperate search to quench some of the unquenchable emotional hunger which is characteristic of many in our midst.

Let me not belabor the points on training further. I do not want to appear unduly critical of our training programs—I have been sufficiently involved to understand their complexity. I want only to stress that what we are currently experiencing in relation to mental health goals and purposes must be early conveyed as we train people for practice.

Social Reality and Institutional Practice

I want now to turn to the third area—that of social reality and institutional practice—and the area with which I assume most of you are concerned.

We know of changes taking place and can document these. Few of us today would express as a major goal of our practice the complete transformation of character or the complete cure of a psychiatric disorder. Wisely, we now speak of rehabilitation—or a restoration to a more effective level of social functioning. We are not as concerned with changing a schizophrenic or a neurotic into a non-schizophrenic or a non-neurotic (whatever that is). We are more concerned, instead, that the unique person, whatever his disability, might be strengthened to a point where he can function on the outside in some semblance of self-dependence.

We know of these changes. We know of the move toward milieu therapy, in its various forms, which is sweeping our field. We know, too, of the push toward more closely interwoven hospital and community programs. The delineation of steps along a continuum has expanded our resources to include foster homes, day hospitals, night hospitals, weekend hospitals, social rehabilitation centers, alumni groups, half-way houses

and a host of other projects designed to meet the individual's needs as he progresses toward health or toward illness.

It is to these institutional, or extra-institutional, programs that I would like to address a few remarks. We used to be highly concerned that the analytically focused hour paid too little attention to the reality situation of the patient. I suggest that in these days of groups, milieu, role-diffusion, multiple therapists and communal living, that we must face the same concerns. Just as it is not enough to view the patient only as he appears during the therapeutic hour, neither is it enough to view him only as he interacts in the dayroom or while he is seated in the unit meeting, debating and discussing the benefits of a therapeutic community.

What I say is not in criticism of milieu or joint therapies. It is, rather, a plea that the implementation of such programs include attention to the social reality and the social needs of the patient population. In this regard there are several points I would like to make and to illustrate.

- (1) Programs must be sufficiently flexible to accept the individual in his own social roles, and to strengthen his ability to function within these.

On our family treatment unit, we admitted a woman in her mid-40's, severely agitated and depressed. She made a rapid and good clinical recovery from the acute symptoms. Others at home were a husband, 14-year-old son, an older maiden sister, and an aged mother—so we saw an extended family unit. As family treatment unfurled, husband emerged as a steady and adequate breadwinner and as an adequate performer in his direct relationships with the son. However, within the home he was consistently dominated by the sister and aged mother. In an early seminar, one of our more impetuous residents quickly chastized the admissions team for allowing the mother and sister to provide information and to take the key roles in admission—rather than insisting the husband do this. Indignant, he insisted the husband should have played a role which, in theory at least, most would ascribe to a husband at such a time. The error was his failure to recognize that this was a highly structured family group within which members had long held specific roles—and that impulsive intervention would have left the entire family floundering.

- (2) My second point is that program content and orientation must be compatible with the social orientation of the patient population.

I stress this because I believe that all of us intimately connected with a treatment unit are in danger of perceiving such a unit as *the* reality. Consider the therapeutic community where the major emphasis is on group process and where the conceptualization of community living in no way resembles the external living situation of the patients.

The frequent emphasis, for example, on the expression of feelings—and especially those of anger and hostility. We must be constantly attuned, as therapeutic agents, that such expressions must be purposeful, and that the mere encouragement of their expression will help few who must live in an outside world where such is not permissible. It may be a therapeutic success when the patient can call the head nurse an SOB—he must, however, also recognize that he likely cannot call the boss the same name, no matter how much better he might feel.

All this point suggests, then, is that we strive to relate our treatment programs as fully as possible to that to which the patient must return—and to be ever aware that we are not striving for adjustment only within the treatment unit, but on the outside as well.

- (3) We must seek to widen our participation and intervention in the outside social systems to which the patient is joined.

We have been trying, and with some success, to modify the social structure of our institutions. We seek now to reduce or eliminate the organizational factors which create dependence and hurry the disease process. There is an exciting range of activities underway, aimed at reducing isolation and supporting social strengths. We still give, however, more lip service than anything to those systems outside the agency. If we are sufficiently convinced of the importance of the social environment to completely reorganize our hospitals, then we should be equally prepared to aggressively move outside the hospital. Granted—we cannot move whole communities inside our walls. We can move, however, to tie the patient and his behavior to specific components within the community—our diagnosis and treatment can be related more meaningfully to the family, the neighborhood and the community—We can interview

outside our offices; in homes, shops, and, if necessary, in taverns and pool rooms. We can go further in breaking down the staunch dichotomy of patient-doctor and family-social worker. We can fan out in a variety of ways—and once identifying the meaningful elements on the outside, we can intervene to do as we seek to do inside—support the changes of not only restoration of functioning, but maintenance of it.

Before concluding, please allow me one additional point. As mental health personnel, I think we must modify our conception of ourselves. We are, whether we like it or not, both enforcers of social norms and agents of social change. We are very fond (especially in social work) of individual self-determination—or client choice. However, as Art Robbins of the University of Missouri said at a recent institute, we can allow this only within certain realistic limitations. We will not let the psychotic person walk naked down the main street—nor will we let the public aid recipient cash and spend each check in a barroom, despite what our Chicago papers like to say.

As for being agents of change, we can no longer ignore this role. If we have the knowledge and understanding to identify social pathology and social lags, we must then accept a further step in spreading our insights to effect change. My point in noting these two roles is two-fold—first, to broaden our self-concept and, second, to offer our patient a greater chance by concerning ourselves with those reality problems which concern him.

Now, I have spoken at length on social reality. If I have said nothing new I will not be disappointed. My aim today was not to spread new knowledge. Rather, I seek to stress a new emphasis and a more fertile utilization of that we have long known. Charlotte Towle once called the social worker the “social conscience of the Community.” I am not here suggesting that we all ride forth to do battle with the windmills of social pathology. I am suggesting that we learn well the windmills our patient must face—and that our programs be geared to help him do battle once he has left our care.



Hypersensitivity

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Disseminated intravascular clotting was observed in certain cases of hypersensitivity diseases, including disseminated lupus erythematosus, glomerulonephritis, periarteritis nodosa, rheumatoid arthritis, rheumatic fever, dermatomyositis, and scleroderma. Two types of disseminated intravascular coagulation were observed. The first type consists of a low grade, chronic progressive

process which is incomplete and is associated with thrombocytopenia, cryofibrinogenemia, granular deposits of macromolecules of fibrin on the basement membrane of the renal glomeruli and with Raynaud's phenomenon. The second type may be superimposed on the first and consists of a sudden, acute disseminated thrombosis of arterioles, capillaries and venules and is associated with shock, a hemorrhagic tendency, a decrease in the circulating components of the hemostatic mechanism, and focal necrosis in a variety of organs including the lungs, heart, kidney, adrenals, pancreas, and other viscera.

WHAT'S NEW?



Significant Legislation Passed During the 1965 Session of the Arkansas Legislature

During each session of the Arkansas General Assembly numerous Acts of varying significance to public health and the private practice of medicine are passed. Many of these Acts become effective immediately upon the approval of the Governor, providing it is declared emergency legislation, and others become effective upon the effective date declared in the Act.

The following Acts, Amendments, and Resolutions have been summarized for the benefit and reference of the medical profession:

Act 64—1965 provides authority and sets up procedures whereby narcotics addicts may be committed by the probate courts to the State Hospital for treatment. It further provides such individual who has been committed shall remain under the supervision of the State Health Officer and the State Board of Pardons and Paroles for a period of up to five years.

Act 128—1965 makes it unlawful for a person to work in a public eating establishment who is not shown to be free from tuberculosis in a communicable state according to tests made within the previous twelve months, such tests to be approved by the Arkansas State Department of Health.

Act 147—1965 prohibits construction and operation of marine toilets or equipment on boats so as to directly or indirectly discharge inadequately treated sewage into water or leaving containers of inadequately treated sewage removed from a boat in or near the water. It authorizes the State Board of Health to make and enforce rules and

regulations on sewage treatment devices on boat toilets.

Act 409—1965—This Act amends the Uniform Narcotic Act to bring it into closer conformity with the Federal Narcotic Act. Among other things, it makes it unlawful for any person to purchase any narcotic drug who does not have a legal reason for doing so. It also provides that physicians shall keep records of narcotic drugs administered or dispensed by them.

Act 428—1965 amends Section 82-956.8 of the Arkansas Statutes, which refers merely to "imprisonment," to provide that, in subsequent convictions, a defendant convicted of unlawful sale of barbiturates or amphetamines may be sentenced to the State Penitentiary.

Act 433—1965 authorizes the State Department of Health to furnish, on application and payment of a fee of fifty cents for a metal tag, or one dollar for an identification bracelet, a tag or bracelet listing the name, address, birth date, blood type, and/or other pertinent medical information that might be needed in case of accident or emergency.

Act 434—1965 amends previous legislation to provide that any hospital or nursing home now holding a license other than a temporary license may continue to operate until January 1, 1966. Hospitals, nursing homes, and related institutions operating under a temporary license may operate to the date of expiration of the temporary license, except that the temporary license may be extended. The State Department of Health may, by rules and regulations, provide for the issuance of

three types of nursing home licenses: minimum care, intermediate care, and skilled care. This Act amends previous legislation on the confidentiality of information by giving permission to furnish information concerning a nursing home to the State Commissioner of Public Welfare, if the nursing home is providing care for welfare recipients and if the Commissioner has specific complaints.

Act 455—1965 amends previous legislation which specified an X-ray examination for tuberculosis for the required certificate of health for school teachers and other school employees. It provides that the status of the individual as to possible tuberculosis infection must be determined by a method prescribed by regulation of the State Board of Health. Reactors must undergo sufficient additional tests as may be prescribed by the State Board of Health and must be scheduled for periodic re-examination. A certificate of health must be presented each year before the contract is signed. The Division of Tuberculosis Control of the Arkansas State Department of Health is to examine free of charge all school personnel who do not prefer to have it done, according to the methods prescribed, by a private physician. The Hygienic Laboratory of the State Department of Health is to examine free all specimens of sputum submitted for this purpose, unless private examination is desired by the individual, expense of which is to be borne by the individual.

Act 469—1965 authorizes the construction of a new State Department of Health building to be financed by the issuance of bonds and establishes a schedule of fees for services rendered by the Department of Health to provide revenue to retire the bonds. Fees are to be collected for the review of plans and specifications covering improvements which by law or regulation are, or may in the future be, required to be reviewed by the State Board of Health or the State Department of Health. The fee shall be one-half of one percent of the estimated cost, with a maximum fee of \$250.00. The estimate is to be calculated and paid on the basis of the engineering estimate of the total cost of the particular improvement. These fees will apply to reviews of plans for waterworks, sewage works, swimming pools, nursing homes, and hospitals, and additions and alterations thereto. These are in addition to the fees enacted in Act 471 of 1965, the Vital Statistics

Act.

Act 471-1965 repeals and supersedes previous Vital Statistics Acts, Arkansas Statutes 82-501 through 82-520 and Arkansas Statutes 56-113. It establishes a Statewide Registration System with the Secretary of the State Board of Health (State Health Officer) as State Registrar and authorizes the Board to make rules and regulations. It provides for Registration Districts, and the appointment, compensation, and removal of local registrars by the State Registrar. Set forth are the legal requirements for the registration of births, deaths, marriages and annulments, adoptions, and permits for burial-transits. It provides for the confidentiality of records, the issuance of certified copies to authorized persons, and penalties for violations of these, and for the giving or using of false registration information. The following schedule of fees to be paid by the applicant is enacted: for certified copies of records, \$2.00; for delayed registration, one year or more after the date of occurrence, \$2.50; for new certificate of birth following adoption, legitimation, paternity determination, and change of name, \$2.00; for registration of marriage, to be collected by the county or probate clerk (in addition to the fee of \$1.00 provided by Act 127 of 1885), from the applicant, \$1.00; for divorce, or annulment of marriage, to be collected by the clerk of the court from the plaintiff, \$1.00; for the amendment (correction) of any certificate of record not otherwise provided for in this Act, \$2.00.

Act 454—1965 provides that the Advisory Hospital Counsel will be composed of sixteen persons with eight members thereof to be representatives of "consumers" who are familiar with the need of services provided by hospital facilities. This action was necessary in order to qualify the State to receive Federal monies under "Act 414" of 1961.

House Concurrent Resolution 61—1965 urges physicians attending newborn children to provide for tests for detection of phenylketonuria and directs that the Legislative Counsel study the feasibility of a statewide program for detection and treatment thereof, with findings to be submitted to the 1967 General Assembly.

I sincerely trust that the above information will be helpful and useful in improving the public health.

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State Health Officer



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

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PLACENTA ACCRETA

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Placenta accreta is an unusual obstetric complication which may present a difficult problem to the physician in terms of early clinical diagnosis and management. In addition, the complications of placenta accreta may seriously threaten the life of the obstetrical patient.

DEFINITION AND CLASSIFICATION: Placenta accreta is defined as an abnormal adherence of part or all of the placenta to the wall of the uterus with partial or total absence of the decidua basalis. The varying degrees of this lesion are classified according to the depth of uterine wall involvement and the amount of placental surface extension. Placenta accreta is the term applied to the condition in which the chorionic villi have become attached directly to the uterine muscle. Placenta increta applies to the condition which exists when the myometrium is invaded by chorionic villi, and in placenta percreta the serosal surface of the uterus is reached and sometimes perforated by the chorionic villi.

Total placenta accreta involves the whole placenta. Partial placenta accreta involves one or more cotyledons and focal placenta accreta involves only a portion of one cotyledon.

ETIOLOGY: The constant pathological feature in cases of placenta accreta is absence or poor development of the decidua. It is reasonable to assume, therefore, that any factor which adversely affects the development of the decidua could result in placenta accreta. The conditions most frequently cited as being contributing factors are the following:

A. Previous endometrial damage such as trau-

matic curettage, or non-sterilizing doses of irradiation with resultant fibrosis of the endometrium.

B. Previous endometrial infection.

C. Maldevelopment of the uterus.

D. Hypoplasia of the endometrium.

E. Areas of maldeveloped endometrium such as those seen overlying submucous myomas and in scars from previous uterine surgery such as cesarean section, myomectomy, and cornual resection.

Approximately twenty percent of the cases of placenta accreta in the literature are associated with placenta previa.^{1,2} Some writers feel that placenta-accreta-previa occurs with such frequency because the decidual response is poor in the lower uterine segment and, thus, implantation in this area may lead to accretion. In addition, a high incidence of previous manual removal of the placenta has been recorded. It seems likely, however, that previous manual removal was required by decidual deficiency and abnormal adherence of the placenta rather than removal of the placenta predisposing to subsequent accretion.

Greig³ of the Royal Maternity Hospital in Belfast has postulated that in some instances a secondary absorption of normal decidua may occur as a result of "excessive thromboblastic activity." No other information regarding this theory was found in the literature, and no mention of it was noted in the recent American literature except one statement which suggested that this was very unlikely and cited the very early development of accretion in some instances as supporting the doubt cast on this theory.

Novak⁴ has demonstrated islands of immature, or unripe, endometrium in the functional layers

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which he calls "mixed endometrium." He postulates that these islands may not respond to corpus luteum stimulation and may predispose to areas of focally defective uterine decidua in such circumstances leading to partial placenta accreta.

AGE AND PARITY: In 1937, Irving and Hertig⁵ reviewed eighty-six cases of placenta accreta previously reported and added eighteen cases of their own. The average age of the cases in the literature at that time was 32.5 years, and the average parity was 4.7. In their own series, the average age was 31.4, and the average parity was 5.6. Greenhill⁶ states that in over 200 cases reported in the literature, only ten per cent of the patients were primiparas and forty-six per cent had four or more pregnancies. In general, it can be concluded that the incidence of placenta accreta increases with increasing age and parity.

INCIDENCE: There is marked disagreement in the literature as to the frequency of this condition. In 1937, Irving and Hertig⁵ found the incidence to be one in 1,956 in their combined study. In 1953, Putterman and Detrano⁷ reported two cases in 31,390 deliveries, or one in 15,500. Dyer,⁸ et al, reported eighteen cases in 144,590 deliveries, or one in 8,032. In 1954, Stone,⁹ et al, found an incidence of one in 2,000 over a four year period in two New York City hospitals. Burke¹⁰ reports three cases in 93,000 births, or one in 31,000 pregnancies. At the Royal Maternity Hospital in Glasgow,² the condition occurred twelve times in 53,978 deliveries, or one in 5,332 times. Abitbol,³ in 1958, stated that he believed the incidence to be approximately one in 10,000 deliveries. If one calculates an average incidence from the reports in the literature, this would seem to be close to the average reported frequency. One must remember that many cases are not reported, and probably many cases of focal and partial accreta go unrecognized and are diagnosed as postpartum hemorrhage due to unknown cause.

DIAGNOSIS: The definitive diagnosis of placenta accreta is made by histopathologic examination only. However, the obstetrician, when confronted with an abnormally adherent placenta, must make the clinical diagnosis promptly and institute proper therapy without delay. The clinical diagnosis of placenta accreta may be made by lack of separation of the placenta and the inability to manually detect a cleavage plane be-

tween the placenta and the uterus. The placenta may be densely adherent to the uterus, either in part or its whole area. Separation of the non-adherent area of a partial placenta accreta almost invariably leads to profound hemorrhage. Unfortunately, there are no reliable signs or symptoms prior to the third stage of labor. Some authors have suggested that symptoms may be present during pregnancy which indicate the possibility of placenta accreta. These consist of bleeding in the first trimester which is usually interpreted as threatened abortion and severe labor-like pains throughout pregnancy. While these symptoms may be suggestive, they are not diagnostic; however, such a history plus the lack of placental separation should alert one to make the presumptive diagnosis of placenta accreta.

HISTOPATHOLOGY: The histologic picture of placenta accreta is described in detail by Irving and Hertig.⁵ A constant feature is the deficiency or absence of the compact and spongy layer of the decidua basalis. This is the area in which cleavage occurs in normal placental separation. There is also penetration of chorionic villi either to or into the myometrium. A generalized deficiency of the decidua vera is also present as evidenced by little or no decidual layer on the muscle lying away from the placental site.

TREATMENT: Once the physician has made the clinical diagnosis of placenta accreta, there are three courses of action open to him: attempted removal by manual or instrumental means, hysterectomy (total or supracervical), and expectant observation including uterine tamponade and support with blood if indicated.

Attempted removal, which was employed widely at one time, has been almost completely abandoned because of the staggering maternal mortality accompanying the performance due to massive hemorrhage, traumatic rupture, and inversion of the uterus.

There are varying reports in the literature as to the success of the conservative approach. There are case reports of total accreta which were treated expectantly, with no subsequent history of removal or passage of the placenta. These uteri were subsequently described as normal, and there are even cases so treated in which subsequent pregnancies occurred.^{11,12} There is no explanation for the fate of the placenta. In such cases there is no way to be certain that there was actual

accretion but conversely, in any case treated surgically, there is no way to know the outcome had these cases been treated conservatively assuming hemorrhage and infection could have been controlled.

The consensus in the literature seems to be strongly for surgical approach (hysterectomy) as soon as the clinical diagnosis of placenta accreta is made.

COMPLICATIONS: The main complications of placenta accreta in order of their frequency are:

1. Hemorrhage
2. Infection
3. Rupture of the uterus, either spontaneous or traumatic
4. Inversion of the uterus

Hemorrhage remains the most serious threat to the life of a patient with placenta accreta. This is especially so in cases of partial placenta accreta when the non-accreta portion of the placenta is separated and also in cases of placenta previa accreta. Most recently reported deaths in the literature are attributable to hemorrhage, but these are cases in which the condition was not recognized until late, and manual removal was attempted. It must be strongly emphasized that persistent attempts to remove an abnormally adherent placenta may result in fatal hemorrhage. Placenta accreta must also be borne in mind in cases of incomplete abortion with persistent bleeding. In 1954, Dyer⁸ reported a case of a patient who was curetted twice at ten weeks gestation for incomplete abortion but continued to bleed. A subtotal hysterectomy became necessary and placenta accreta was found histologically.

Spontaneous rupture or perforation of the uterus must be borne in mind in evaluating any gravid patient with acute abdominal signs, especially so in any patient with a history of any of the factors which predispose to placenta accreta.¹⁴ Diamond and Pollock¹⁵ found eighteen authenticated cases of spontaneous rupture of the uterus associated with placenta accreta in the literature prior to 1962. In only one case was there a history of previous cesarean section. They reported the case of a 26-year-old, white female who had had a classical cesarean section for prolapsed cord and who presented at 32 weeks in labor with hemoperitoneum and was found to have a fundal rupture with placental tissue protruding. The

infant was delivered and the placenta was found to be adherent and a hysterectomy was performed. Placenta percreta was confirmed microscopically. The infant, which weighed 1,600 grams, expired, but the mother recovered.

Manning and Pavey¹⁶ have reported a case of spontaneous uterine rupture at sixteen weeks gestation from placenta increta in a patient who had had two previous cesarean sections. At the time of delivery of her previous gestation, she had an increta which was found at cesarean section and a portion of the uterine fundus was resected and the uterine wall repaired. The patient survived the uterine rupture and tolerated a supra-cervical hysterectomy by virtue of several blood transfusions. Rotton and Friedman¹³ state that there were five cases of traumatic rupture of the uterus in 73 cases of placenta accreta in the literature from 1937 to 1945, and none from 1945 to 1956. They feel that this, too, is a result of early surgical management.

With the advent of immediate hysterectomy as a method of therapy, sepsis has, to a great extent, disappeared as a cause of mortality. However, it does remain a potentially significant factor in the morbidity of patients with placenta accreta, especially in patients treated conservatively or with manual or instrumental removal.

Finally, the complication of uterine inversion now rarely ever occurs since the treatment has shifted from attempts at forceful removal of the placenta to the surgical approach.

Review of Cases at the University of Arkansas Medical Center

INCIDENCE: Placenta Accreta has been diagnosed seventeen times from January 1, 1950, to July 1, 1964, at the University of Arkansas Medical Center. Three of these instances occurred in the same patient. During this period, there were 31,499 deliveries at the University Hospital giving an uncorrected incidence of one in 1,853 de-

TABLE I
INCIDENCE

17 Cases/31,499 Deliveries	= 1:1,853
10 Cases Delivered at UAMC	= 1:3,150
5 Cases Delivered at UAMC (Histologic diagnosis)	= 1:6,299

liveries. However, seven of these cases were delivered elsewhere. This decreases the incidence to one in 3,150 deliveries at the University of Arkansas Medical Center. In the ten cases delivered at the University of Arkansas Medical Center

there is histologic proof of placenta accreta in five instances for a histopathologically documented incidence of one in 6,299 deliveries.

STAGE OF GESTATION: Twelve of the deliveries occurred in the third trimester; five occurred in the second trimester; and none in the first trimester.

TABLE II
STAGE OF GESTATION

Third Trimester	12
Second Trimester	5
First Trimester	0

AGE, PARITY, AND RACE: The average age of the patients in this series was 28.6 years; the youngest was 18 and the oldest was 42. The average parity was 6.2 with the lowest a gravida two, para one, abortions one (accreta) and the highest a para 18. Fourteen patients were colored, one was Caucasian.

TABLE III
AGE, PARITY AND RACE

Age	Parity	Race
Youngest 18	Lowest 1	Negro 14
Oldest 42	Highest 18	Caucasian 1
Average 28.6	Average 6.2	

PREDISPOSING FACTORS: In eight of seventeen cases, there had been a previous cesarean section. Six of the sections were low cervical and two were classical. In only one of the low cervical sections was the scar involved, a case of placenta-previa-accreta with twins. Both of the previous classical scars were involved. Three patients were known to have had a previous curettage. Six patients had a history of one or more abortions. Five patients had had pelvic infections. Three patients had had previous manual removal of the placenta ranging from one to three times. One patient was found at hysterectomy to have a myoma underlying the placental site.

TABLE IV
PREDISPOSING FACTORS

Previous Sections	8
Previous Abortions	6
Previous Pelvic Infection	5
D & C	3
Manual Removal of Placenta	3
Myoma	1

DIAGNOSIS: Of the seventeen cases here reported, ten were histologically documented and in seven instances the diagnosis was clinical. Three of the documented cases were accreta, six were increta, and one was percreta. All cases clinically diagnosed were assumed to have been accreta and all of the patients in this study were

classified as partial.

TABLE V
CLASSIFICATION OF TYPES ON
HISTOLOGIC DIAGNOSIS

Accreta	3
Increta	6
Percreta	1

MANAGEMENT: Eleven patients in this series were managed with hysterectomy; seven were total and four were subtotal. In four of the eleven cases treated surgically, accreta was found at time of repeat cesarean section and a hysterectomy was performed. The other seven hysterectomies were carried out because of inability to manually remove the placenta and/or persistent hemorrhage.

Six patients were managed without hysterectomy. Only one of these was a term pregnancy and the remainder were premature deliveries or abortions. All had minimal bleeding and minimal accretion clinically. All six of these patients had manual removal of the placenta; two were treated with a uterine pack and a curettage was done following manual removal in one instance after a second trimester abortion. One of the six patients treated without hysterectomy had clinical accreta at the time of repeat section and again later at the time of a mid-trimester abortion. This patient subsequently had a placenta increta and a hysterectomy was done.

TABLE VI
MANAGEMENT

Hysterectomy	11	Conservatively	9
Total	7	Manual Removal	6
Subtotal	4	Pack	2
		D & C	1

COMPLICATIONS: Hemorrhage was the most serious complication. In this series an average of 2,800 ml. blood replacement was required for patients treated by hysterectomy. The least blood replacement in this group was 1,000 ml. and one patient required 8,000 ml. plus two units of plasma. Patients who did not require hysterectomy received an average of 580 ml. replacement with a range of no replacement to 1,000 ml.

Sepsis was the second most common complication; seven of the surgically treated cases were febrile, and four of the conservatively treated cases had fever. Parametritis, pyelitis, and pneumonitis were the prime causes of fever in that order.

One patient had bleeding from a uterine pedicle and was re-operated. Another patient had a

large retroperitoneal hematoma and bled from the vaginal cuff at twenty and twenty-eight days post-operatively.

Small uterine ruptures were found at laparotomy in two instances; one had had a previous classical section, the other had placenta percreta. Both had had uterine packs. No patients in our series had inversion of the uterus.

TABLE VII
COMPLICATIONS

	Total Patients	Hyster- ectomy	Con- servative
Hemorrhage (+500 cc)	14	11	3
Fever	11	7	4
Perforation	2	2	-
Inversion of Uterus	0	-	-

Summary and Conclusions

Seventeen cases of placenta accreta were treated at the University of Arkansas Medical Center from 1950 to 1964. Of the ten histopathologically documented cases, five occurred in 31,499 deliveries for an incidence of approximately one in 6,300. Hysterectomy was carried out eleven times during this period for placenta accreta. There was one case of placenta-previa-accreta in this series.

Placenta accreta is a rare condition; its exact incidence cannot be determined, but probably occurs to a clinically significant degree in no more than one in 5,000 deliveries. No specific etiology can be stated; rather it is felt that several conditions predispose to abnormal adherence of the placenta.

The clinical diagnosis of accreta must be made on the basis of lack of separation of the placenta and an inability to find a cleavage plane between the uterus and the placenta. The definitive diagnosis rests with the pathologist.

The consensus of opinion is that "conservative management" should be abandoned for a more vigorous surgical approach. Since this method has been utilized there has been a marked decrease in maternal mortality. The physician must use

sound clinical judgment when faced with an abnormally adherent placenta, and vigorous attempts at manual removal should be avoided. However, as demonstrated in this series, small areas of clinical accretion and minimal bleeding may justify the occasional more conservative approach.

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TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



Multiple Causality in Psychiatric Illness and Personality Formation *Experiential Causation of Deviant Behavior*

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Part II.

In Part I published in a previous issue² of this Journal, genetic and brain damage factors were discussed in regard to their capacity to cause deviant mental and emotional behavior. The present paper deals with experiential causation. Many persons in psychology, sociology, and psychiatry have tended to go to extremes in their belief that environment causes all the behavior, normal or deviant, in humans, that is worth talking about. One of the results of this extreme position is that quite often parents who bring their children to guidance clinics, bring with them a heavy feeling of blame. They think that their attitudes and methods of rearing have been wrong, that they are failures as parents, that they are in danger of being attacked by the psychiatrist for this, and that they are in danger of having their minds altered in ways that are mysterious and threatening. The parent who is convinced that the child's deviant behavior springs from the structure of his brain is rare indeed. Those who don't blame themselves, often tend to blame the influence of a companion, a divorced parent, or they may blame some notion or idea or feeling that has got lodged in the child's head as a result of an experience. These parents often seem to think that correction of the extraneous influence is a matter of knowing the right combination of words to say to the child, which when said will set his

mind right, will open it like the combination knob opens a safe.

The main thesis of the present communication (and Part I) is that mental and emotional functioning are determined by many factors, all of which must be carefully considered; and that when one or the other factor is suspected but cannot be measured, some effort should be expended in acknowledging this. Diagnostic convention allows for this kind of oblique stereotyped comment on constitutional factors: "premorbid personality and predisposition: mild; history of emotional instability" or more frequently, "undetermined". I fear that this part of the diagnostic formulation is given little thought and weight. The need for evaluation of all these contributory factors in children and adolescents is greater than in adults. The entities that are treated in adult psychiatry are quite different from those in child psychiatry, and the methods, techniques, and facilities are much more advanced in the former. A ready pitfall confronts the child worker in that feelings run high about injustices to children, and for reasons either cultural or hidden in their own personality dynamics, they sometimes tend to leap upon the ready scapegoats, the parents with selfrighteousness and concealed scorn.

It is safe to say that all workers in child guidance are convinced of the great importance of early experience in determining later behavior.

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But a great fuzziness hangs over the social and psychological professions with regard to an awareness of and understanding of the contributions of the organism itself and of the all-important interactions during development. The values of an individual, especially as determined by the influence of different cultures, can vary greatly for any given genetically determined temperament. Any temperament, unless extreme, it seems to me can be fitted into any culture; however, the natively endowed temperament still stands as one of the foundations of the fully developed personality and exerts its pressure not just in infancy and childhood but throughout the life of the individual, at each juncture, choicepoint, and experience where emotions or mood can influence decisions. This underlying temperamental predisposition weighs heavily at each decision point in life as to what modes of action are selected and stored as a repository of habits and attitudes available to the individual. In a related way, but with important differences, I am sure, the special talents, inborn peculiarities of mental functioning, and perceptual deficiencies play an important role in the developing personality, as he reacts moment by moment to his environment.

Returning to the question of the capacity of a given temperament to adjust within a given culture—the values of a particular civilization can allow for the routine murder of male captives, enslavement of females and children, even the murder of children, can allow children to work themselves to death in factories, can allow the young to hurdle into death in cars and motorcycles; yet beyond these practices, these very same people in these civilizations, who daily see and permit these practices (or even engaged in them) can be devoted fathers, good providers, generous with gifts, and wise advisors. The values of particular families can shrug off feud, accept into their midst the racist murderer, defend from outsiders an habitual wife-beater, ignore the evilness of a vicious family gossip, and tolerate the most humiliating verbal abuse and emotional tyranny; yet outside these circumstances both malleasants and victims can be models of worthwhile social and family activity. What we are saying is that the range of possible behavior can be fantastically broad without seriously encroaching upon inborn temperamental and intellectual proclivities. It is only in the extremes of temperament and in-

telligence, in relation to a given family and culture, that the inborn element is sufficiently deviant to stand out relatively independently of the environment. And I think the same may be said of the extremes of family and culture, in their power to generate unusual aggressiveness, timidity, and extravagant refinement of intellect relatively independently of the inborn proclivities. However, the interaction of any given inborn temperament and intelligence with any particular environment certainly leads to a uniqueness of character and defenses, to knotted conflicts or felicitous flows of talent whose understanding makes it imperative that the contribution of each be contemplated and explored.

Almost all of the work on early deprivation in animals and man deals with extreme deprivation: pups reared in total isolation, monkeys reared by wire "mothers", and infants reared in institutions. In clinical work we do not regularly meet with a comparable deprivation in the very children whose severity of symptoms demands such a background. We should be able to expect a reasonable proportionality between the degree of deprivation and the degree of illness, and yet this is so often not the case. The "built in" variability in temperament, emotionality, and specific mental functions must account for the absence of this expected proportionality. As discussed previously this variability can be attributed at least partly to genetically determined differences of the brain, to maturational lags, and to subtle degrees of brain damage. Research in this area must take into account the importance of *degrees* of deprivation interacting with *degrees* of deviation of temperament, intelligence, and special mental functioning. At an elementary level, the work of Krushinskii,¹ cited earlier, stands as a model for the experimental study of these interactions.

However, we cannot wait for all these experiments, and most of us are convinced that certain interpersonal patterns are indeed pernicious. Some children raised in every kind of filth manage to grow up and remain physically healthy, but many succumb. Probably the same holds true for affectionless and psychologically deformed family environments, i.e. some of these children reared in emotionally malignant environments become permanently deformed in character and/or vulnerable to illnesses of the mind. Among the psychologically unhealthy situations and interper-

sonal structures the following might be mentioned: cold, (perhaps dutiful) affectionless parents, parents who plan a child's future as a vicarious fulfillment of their own aspirations, parents who make their child the absolute center of their universe, the parent who is very possessive and controlling, the parent who is immature and egocentric and who pushes the child onto others or treats it as one would a pet poodle, the excessively harsh and cruel parent, the parent who is aggrandized by having a child to belittle in hidden ways, the parent who places the child in a "double bind", that is, within two or more contradictory injunctions, etc.

These and dozens more are the interpersonal configurations which can slowly bend the child into deformations of character which reduce his chances of living a full and constructive life. Some of these character deformations actually may make him less prone to inner conflict and anxiety; others predestine him (depending upon the other causative factors) to conflict, anxiety, and repetitious re-enacting of the same sick inter-personal patterns.

Most child workers can agree on the positive side that love, good example, and effective authority are as important to the developing psyche as carbohydrate, fat, and protein are to the body; moreover that children need ample areas of freedom in which to exercise their initiative, and that they need a recognition of expected behavior for their age level, and of their particular individualities. Most workers also agree on the importance of elements of constancy—of persons and places. All of child rearing—knowledge, advice, and lore fall within the bounds of those few words. Yet the shades of difference are endless and fascinating.

The task of the child guidance worker involves a mixture of a little science and much art, hopefully yielding wise treatment and wise remedial education. From these shades of and degrees of love, rejection, kind of parental examples, gradations of authority, from the information he can glean from perinatal, developmental, and temperamental history, from the tests of mental functions (such as they are)—from among all these the child worker must perceive the possible causative figures imbedded in the confusing chaos of bits of information, must perceive the rigidities and potential flexibilities inherent in the child, in the

child-parent interaction, and in the child-school interaction—and from all these distill a pragmatic explanation of deviancy and a pragmatic plan of action. Mercy upon him! It is no surprise that clichés, blind mental defenses, dogma, and dogmatic certainty are readily laid upon and used.

With regard to the manifestations of brain dysfunctions and discrete mental limitations, the schools are principally concerned with learning disabilities; but child guidance clinics are concerned both with learning disabilities and with the many other manifestations of brain limitations and dysfunctions that can exist. One brain limitation or dysfunction may cause dyscalculia, another may manifest as extreme predisposition to fearfulness, anger, hyperactivity, or obsessiveness. In some cases a learning disability, extreme fearfulness, and hyperactivity may all appear in one child. Another child may be free of learning disabilities but be very prone to fearfulness. It is important that persons interested in the problems of learning disorders see them in the broad context presented in this paper, and that they not become a completely separate entity, a "thing apart". Understanding a child requires that we perceive and weigh his limitations of intellect (general and specific), of temperament, and that we weigh the depth of effect upon him of deleterious experiences of home, companions, and school. Except for unusual and extreme situations and for the severely culturally deprived, we doubt that early experience or later traumatic experiences can account for specific learning disabilities, deformities of attention mechanism, or chronic hyperactivity. They often stand out independently among the profuse manifestations of intelligence and emotions as do blindness or an abnormal knee jerk. Experience aids one to perceive this as it does a woodman to sense the presence of certain animals, birds, or other men.

As an example of the complex interaction of multiple causes, let us cite actual cases. Early one morning a few years ago, a huge air force bomber exploded over a certain city. Two 11-year-old neighbor boys, A and B, ran in their pajamas to where a badly burned flyer was dangling on his parachute from a tree. They stood by and assisted when he was cut down. A third boy, C, age 12, living in the same neighborhood, witnessed the destruction of the house next door caused by one of the plane's motors crashing into it. A woman

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SEARLE

*Research in the
Service of Medicine*

was killed in this house. The first boy, A, some weeks later, developed severe anxiety, depression, and school refusal. Many of his symptoms lasted for nearly a year. He had always been a rather nervous child and his own emotional security had been significantly undermined by virtue of having an anxious, unhappy mother and a very busy, "absentee" father. It would be easy to ascribe the principal underlying causes to his parents and the precipitating cause to the airplane accident; but we also find that he had a lifelong history of delay-intolerance and fear-proneness which might well be due to inborn temperamental factors. His siblings did not show the same tendencies. At any rate *all of these factors* must be weighed in understanding A, and above all mother and father should be approached with compassion, and not with the assumption of blame. B, who went through the identical stressful experience had a few mild anxiety dreams but otherwise manifested no symptoms or deviations. His parents were stable, supporting, firm, and kindly. It would be next to impossible to unravel the contribution of early experience and genetic factors in this individual child unless there happened to be deviant siblings, or unless other similar families with a contrasting anxious or deviant child were used as a base of comparison. Only considerable experience and honest pursuit of all factors could bring one to the end-state of perceiving the hidden figures and shadows of inborn temperament or parental influence. Those who worship "Exact Science" could not be comfortable with this mixture of causes. This is art, art in one of its greatest forms.

Now consider boy C. All of these boys were of very good intelligence, but C was outstanding—a good scholar, athlete, well liked, and he was quite neat in his personal habits. His parents were well-balanced, devoted and competent. After the accident he developed a fear of the dark, of being alone, and he began compulsively to collect little bits of paper, glass, match boxes, and empty cigarette packages; he loaded his pockets and dresser with this junk. He could not explain his behavior. He merely said that it seemed to make him feel better. These symptoms gradually cleared without psychotherapy in the course of a few weeks. Now it so happened that this boy had sustained a mild encephalitis some three weeks prior to the accident. Did his convalescing

brain condition temporarily predispose this otherwise very stable boy to a phobic-compulsive reaction, which, except for the conjoint occurrence of a mild, post-encephalitic neuropathy and the havoc next door, would probably never have taken place?

The next example points up again the importance of a traumatic experience in a susceptible child. Elizabeth was an 11-year-old child who presented to the family doctor with a pain in her jawteeth, right ear, and she felt generally bad. She was diagnosed as having mumps and given a shot. She developed dizziness and fainting; she became at times incoherent, had spells in which she jerked all over, her head flopped weakly about, and she spoke in a high, singsong voice. She showed general hyperreflexia and an exaggerated startle reflex. She clutched onto a newly bought stuffed rabbit. In time a diagnosis of conversion reaction was settled upon. Some four months previously, Elizabeth's best friend, Jennifer, had been burned to death in a fire. There was some talk of her escaping into the woods but a bone was found in the ashes and a funeral was held. Elizabeth had idolized Jennifer; she tried to dress like her, act like her, even tried to make her "d's" exactly like hers. After Jennifer's death, Elizabeth was depressed, resisted going to school, and told her mother that their teacher, "ol' Miss Ann" probably set the fire. She felt great hostility toward any person who had slighted Jennifer in any way. She developed fear of being alone and especially of walking by certain woods where she was sure that Jennifer and deceased grandmother Drake tried to hold her hand. She developed a handwashing habit. She was very fearful of all fire. She continued to believe that Jennifer was not really dead and would sooner or later return.

There were other important events, remote and recent, in Elizabeth's life. When she was in the first grade a close girl friend had been killed by an automobile. In both instances there had been a recent election for "Queen of the Class" in which Elizabeth had been pit against these particular girls and had come out second to them. Some 10 months prior to the present illness Elizabeth underwent the shock of witnessing her grandfather have a stroke. At the time it unnerved her greatly. The most important recent event other than Jennifer's tragic death was the postpartum psychosis of a beloved young cousin, in which the latter had

jerking spells and spoke in a high pitched sing-song. This had occurred three months prior to present illness and the child was witness to a good part of it.

Elizabeth's mother was an uneducated, but intelligent person, who showed much leadership, good sense and stability. Father was extraordinarily shy; he avoided people, would not ever speak first, and refused to attend any funeral. He was beloved by Elizabeth and her 4-year-old brother, Bobby. He was a fairly successful farmer. The brother, Bobby, was outgoing, boisterous and friendly. Elizabeth's personal history showed that she had always been a shy, sensitive, picky, finicky child. She easily got stomach upsets and had carsickness from infancy. She had always feared needles and doctors. She was always a serious child; as an infant she had rather be in her crib than be held. She never "went" to people; she was always finicky regarding food and clothes. She was usually the top student in her class. She had had concurrent measles, pertussis, and pneumonia at age 19 months. Intelligence testing showed an above average verbal and a slightly below average performance intelligence. The electroencephalogram showed, for what it is worth, a borderline abnormal pattern.

This case was given in order to illustrate multiple causality in all its fullness. How could one not be impressed with the extreme shyness of father, with the child's lifelong pattern of sensitivity, and, of course, with the powerful traumatic events? The discrepancy between verbal and performance intelligence scores in favor of verbal is a frequent finding in disturbed children. Its significance is not well understood. The borderline abnormal EEG is a controversial finding. Hopefully future research will elucidate this area. The history of measles and pertussis at age 19 months may also be significant.

The last case brings out another kind of problem in which experiential pressures were important because the cultural and family demands were such as to highlight this boy's specific incapacity. Tony was 9 years old when first brought to the clinic because of dyslexia (inability to read). He was having headaches and sleepy spells at school and was making just passing marks because the teacher gave him credit for caring and for trying. He cried a great deal at home when his well-meaning father showed disgust and exhorted

him to "really put your mind and will to it". He suffered insomnia due to worry over school work and displeasing his parents. Mother was more tolerant, but his inability to read was inexplicable and exasperating to her. This boy was found to have a left-right confusion but no other "soft" neurological signs. He was also found to have a performance intelligence quotient 15 points higher than his verbal intelligence quotient. This finding occurs often in children with severe reading problems. The overall I.Q. placed Tony in the above average group. There was no history of perinatal complications. Strangely enough father himself had had a mild reading problem but managed to get through college by dint of good intelligence and great effort. Tom's case may have been due to a dyslexia based upon an hereditary deficiency in those cells and circuits in the brain which are crucial for transmitting and blending auditory and visual signals; however, one can't be sure in this case. But from seeing a large number of these children over many years, one becomes convinced that the parents and teachers did not cause it. Tony hated to be singled out for any special attention, but he finally acquiesced to attending a special school and to being tutored in reading. His ability to concentrate was also significantly enhanced by small doses of dextro-amphetamine at breakfast and at lunch. Here then is a case in which the causation is largely organic; but in another culture, say early American pioneer life, Tony's very special and limited deficiency would not even have been noticed, much less a handicap. He would have loved being an outdoorsman. But the environmental factors, were important in his case in that there would have been no let up of pressure from father. Such a child, sensitive, frustrated, defeated, might possibly have been a suicide; at best an uncertain, groping misfit.

Psychiatrists, psychologists, pediatricians, general practitioners, and teachers needs to be aware of the existence of these multiple causes of deviant behavior. Physicians should back the struggling mental health clinics where they have been started, and should help initiate new ones in their own localities. In such clinics the multiple influences that have operated and are operating in their disturbed patients can be evaluated. Physicians especially should insist that each school system set up small special classes for children who

have learning disabilities. This is an area with great potentiality for the prevention of present and future emotional disturbances. And in this direction lies both sound humanism and sound economy.

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Antinuclear Factors in Systemic Lupus Erythematosus and Rheumatoid Arthritis

E. V. Barnett et al (Center for the Health Sciences, University of California, Los Angeles) *Ann Intern Med* 63:100-108 (July) 1965

Antinuclear factors (ANF) were investigated to determine their distribution among the three immunoglobulin classes in the sera of adults with systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA) and of children with RA. The effect of corticosteroid therapy on the ANF titer and on the course of disease was measured in two adults with SLE. Specificities of ANF for different nuclear antigens were investigated by ANF testing on nuclei of several organs and species. ANF of γ_2 , γ_{1A} , and γ_{1M} -immunoglobulin classes were found in some of the sera of children and adults with LE and RA. In RA, ANF were detected late in the course of the disease. In individual patients, γ_{1M} ANF generally appeared before γ_2 ANF. In SLE, ANF were found in higher titers and with specificity for a greater variety of nuclei than in RA sera. The appearance of ANF in RA was a sequel to previously established disease. The presence of high titer ANF of all three immunoglobulin classes at the time of the initial diagnosis in SLE suggests that the immunization process in SLE begins long before it is clinically evident or before it is diagnosed.

A Methylhydrazine Derivative in Hodgkin's Disease and Other Malignant Neoplasms

K. W. Brunner and C. W. Young (410 E 68th St, New York) *Ann Intern Med* 63:69-86 (July) 1965

N-isopropyl- α -(2-methylhydrazine)-*p*-toluamide hydrochloride was given to 51 adults with advanced neoplastic disease; 38 received an adequate therapeutic trial. Significant regression of tumor masses and clinical improvement of greater than a month's duration was seen in 12 to 20 patients with Hodgkin's disease, 1 to 2 with lymphosarcoma, and 1 of 4 with reticulum cell sarcoma. Toxic manifestations included nausea, vomiting, bone marrow and central nervous system depression. In patients with Hodgkin's disease, the following regimen seemed optimal: 20 to 30 mg/kg/week (about 200 to 300 mg/day) for 3 weeks, then 5 mg/kg/week (50 mg/day) as tolerated for maintenance. The drug was given orally, daily, in divided doses. The drug was most effective in patients with Hodgkin's disease who were clinically compensated and had not received extensive chemotherapy previously. However, useful responses of greater than one month's duration were obtained in six of 12 patients who had previously received alkylating agents and *Vinca* alkaloids to tolerance without control of the disease. This drug is clinically useful in Hodgkin's disease.

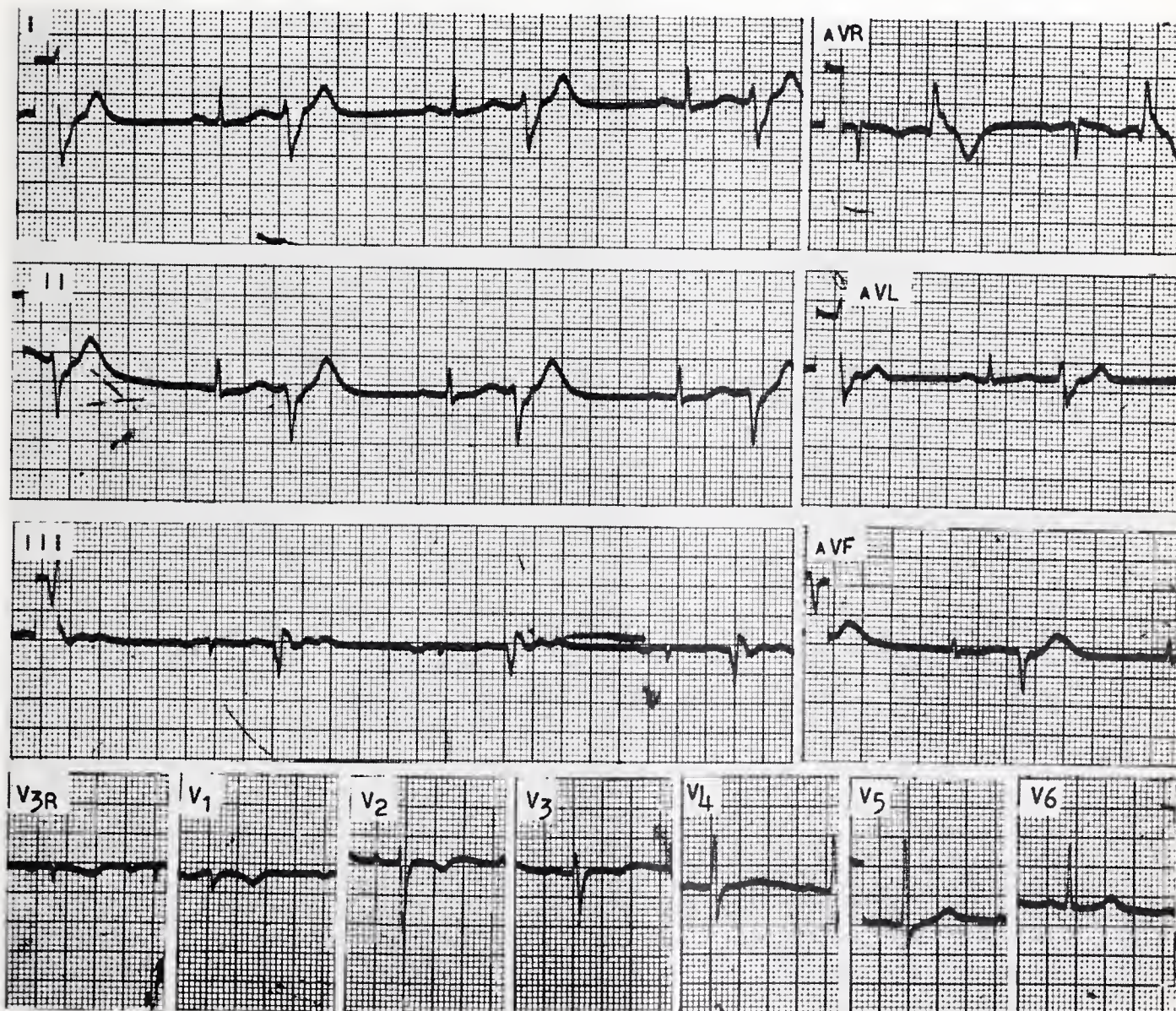


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 37 SEX: F BUILD: MEDIUM BLOOD PRESSURE: 110/65/65
CARDIAC DIAGNOSIS: Post-operative mitral valvulotomy
OTHER DIAGNOSIS:
MEDICATION: Digoxin 0.25 mg.
HISTORY:

SEE ANSWER ON PAGE 200



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

SEE ANSWER ON PAGE 200



20-36-27

57 year old male

HISTORY: The patient has hypertensive cardiovascular disease with congestive heart failure which had been recently treated with low sodium diet, digoxin and chlorothiazide 500 mgs. per day plus potassium chloride tablets, one gram BID. After about six weeks of this therapy the patient was readmitted with a two day history of abdominal cramping, pain, nausea, vomiting, and lack of bowel movements.



RESURGENCE OF SYPHILIS

The State of Arkansas, unfortunately, is keeping pace with the current resurgence of venereal disease across the nation. Despite the availability of an effective means of control, syphilis morbidity continues to increase at an alarming rate.

The latest information made available from State Department of Health statistics reveals the following:

1. The incidence rate of infectious syphilis increased 30.3 per cent over the preceding fiscal year.
2. The most dramatic increase was experienced in the greater Little Rock metropolitan area where a 139 per cent increase occurred.
3. Those patients aged 24 years and under constituted 60.8 per cent of the reported primary and secondary syphilis cases (see accompanying map).

As disclosed in recent United States Public Health Service statistics, every nine minutes venereal disease strikes a teenager in the United States. Teenagers and young adults under 25 years of age are responsible for more than one-half of all reported infectious venereal disease in this country.

Shocking? Yes. Overwhelming problem? Not necessarily. The United States Public Health Service has approached the problem by applying the epidemiological method. This includes detection of cases as early as possible; immediate treatment of cases; interview of each and prompt search for the contacts; examination, diagnosis and treatment of contacts found to be new cases, with epidemiological treatment of the remaining contacts. In this procedure, speed is an essential factor, so rapidly does venereal disease spread.

Epidemiological services are provided statewide. Naturally, this requires a high degree of diplomacy and skill since the source of all such information is fully protected, and the epidemiologist must preserve family, social, and occu-

pational relationships intact. The bulk of this work is performed by Venereal Disease Epidemiologists assigned throughout Arkansas. They are paramedical personnel, especially trained and professional in every sense. They patiently and meticulously do a job which almost no private practitioner has time to perform. They consider every case of syphilis a medical emergency, and they use a fast and highly efficient system to exchange information—local, interstate, or international—in order to break the chain of infection as quickly as possible.

Interviewing services provided by the State Department of Health through the first eight months of fiscal year 1964-1965 yielded an average of 5.44 contacts per infectious syphilis patient. The national average is 3.70 contacts per patient. From among the contacts obtained, 202 cases of primary and secondary syphilis were identified.

The epidemiological work being done in Arkansas is aptly demonstrated by the report of an outbreak of infectious syphilis in Chicot County. A local physician, upon suspecting primary syphilis in a 23-year-old Negro male, called the epidemiologist in that jurisdiction who provided darkfield services that same day. The examination revealed the presence of *treponema pallidum*, and the physician requested that epidemiologic investigation begin immediately in an effort to determine the identity of those individuals sharing spirochetes with the patient. The subsequent investigation led to the discovery of fourteen additional cases in Chicot County, one in Chicago, and another in Louisiana. The majority of the patients were teenagers.

Similarly, an 18-year-old white female with primary syphilis was referred to the health department for epidemiological investigation. The epidemiologist obtained the names of eighteen contacts from the patient, two of whom were found to have primary syphilis. In this cluster, the promiscuity of the syphilis-prone population

was clearly demonstrated. One seventeen-year-old college student named forty-four different sex partners with whom she had been intimate in a 3-month period. Certain interesting points are to be considered in this limited epidemic. The first link in the sex chain was discovered by an alert private physician who diagnosed syphilis, then called on the health department for assistance. The 188 persons involved in this cluster, all of the white race, ranged in age from 14 to 39. Of the total group, 144 were teenagers. Mobility of the patient group was a factor in determining source and spread, as named contacts were found as far east as New York City and as far west as Los Angeles, California.

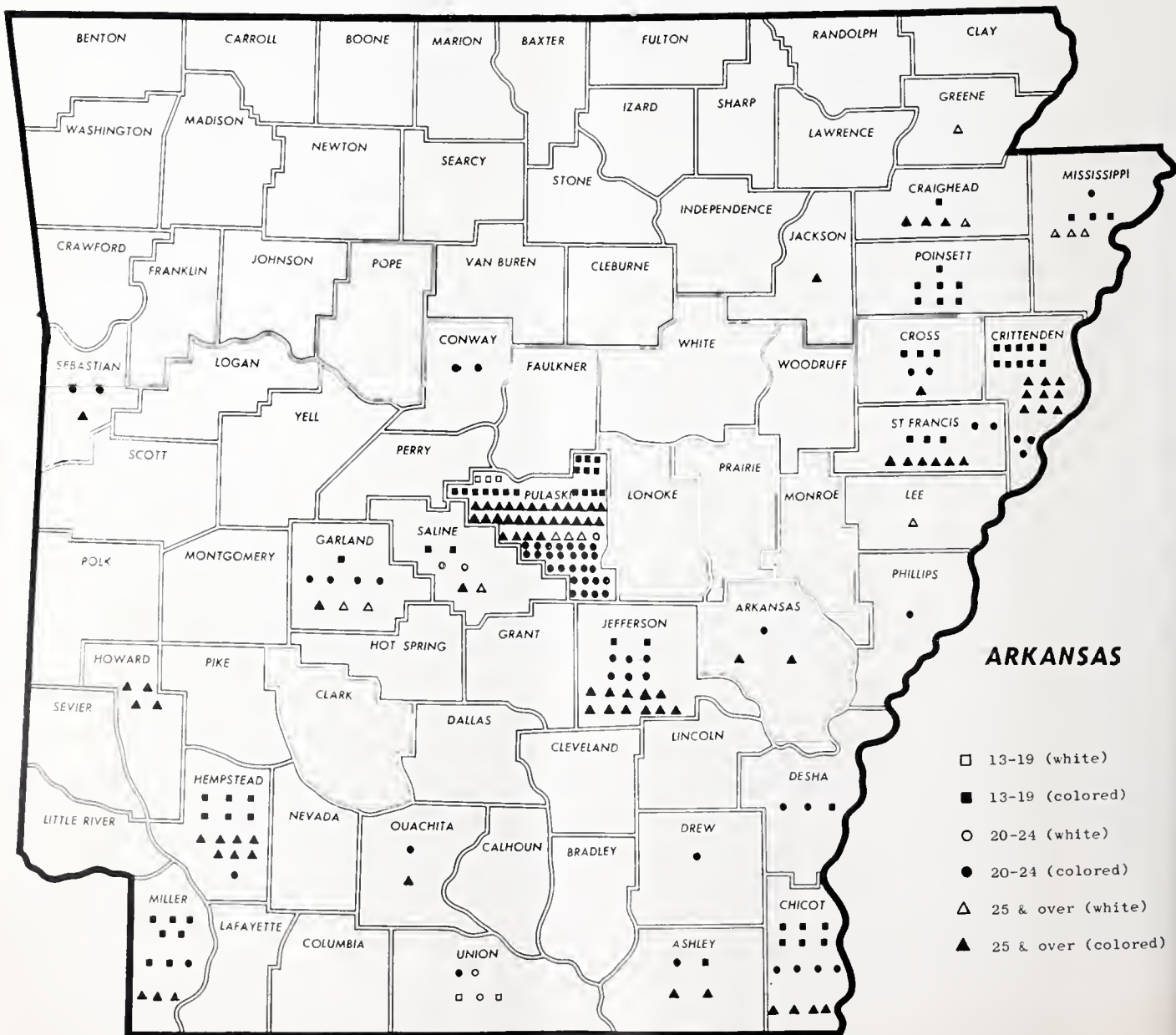
There is some concern regarding eradication if cases are not promptly reported, as every delay or unreported case permits pseudopods of infection in the community to develop more cases.

A recent report on venereal disease by the Committee on Public Health of the New York Acad-

emy of Medicine pointed out, "the lack of cooperation on the part of private physicians in reporting patients with venereal disease, or in permitting these patients to be interviewed for contacts, is said to be a principal deterrent to bringing the resurgence under control and eradicating venereal disease". In essence then, syphilis eradication will only be realized when full cooperation between private medicine and public health is attained.

It is the medical profession's responsibility to insure that today's youth be kept healthy. Syphilis eradication is not a probe in the dark; it is rather, a precise movement guided by the proven tools of epidemiology. A joint effort is the only method to achieve eradication. The private practitioner must assume the leading role by renewing his index of suspicion for syphilis, encouraging patients to seek early diagnosis of venereal disease; simultaneously making use of available health department confidential epidemiological services.

PRIMARY AND SECONDARY SYPHILIS INCIDENCE
BY AGE, COLOR AND COUNTY DISTRIBUTION
FOR FISCAL YEAR 1965





EDITORIAL

The Ciba Foundation Colloquium The Etiology of Diabetes Mellitus

Alfred Kahn, Jr., M.D.

Of considerable interest is a new Ciba Foundation colloquia on "Aetiology of Diabetes Mellitus and Its Complications." Everyone knows a little about diabetes, but the more recent advances just do not seem to reach the medical public in an easy to assimilate form. This small text comes closest to attaining this ideal. The text was edited by Cameron and O'Connor. Some of the facts from this colloquia are summarized here.

Walker reported on two diabetic surveys five years apart in a village of 5,000 people. His survey showed a "basic graded pattern of developing diabetes which is usually progressive but may be arrested." A family incidence was present. The peak diabetic age was 55 to 64 years. Overweight was an important factor, as was stress. The progression was fastest in multiparous women.

Ogilvie reported on the amount of tissue composing the islets of Langerhans in normals and in diabetics; for example, normally the islet tissue in males increases from 0.12 grams to 1.07 grams in the first 21 years of life; there seem to be two growth spurts, infancy and from 13 to 21 years. Diabetes is less in the islet growth spurts. Ogilvie has tried to assess the pancreas in persons in various stages of diabetes from the earliest to the latest. Pancreas of patient's dying with acute diabetes and controls were heavier than the pancreas of chronic diabetics, and the weight of tissue of chronic diabetics was least, acute was moderately reduced, and controls had the largest amount of islet tissue. When the size of islet tissue was computed, it was found that the longer the diabetes, the smaller the amount of islet tissue; how-

ever, it was interesting that in acute diabetes the islets were larger than in controls. Since obesity is a pre-diabetic condition, the islet tissue was measured in obese persons without diabetes and the islet tissue was significantly increased. Obese persons show a progressive diminution in their tolerance to glucose and after twelve years might show changes suggestive of diabetes. The author postulates pituitary growth hormone might perpetuate the islet hypertrophy and eventually lead to its exhaustion and diabetes.

Lacy has studied the pancreatic beta cells using the electron microscope and reports that the beta granules probably represent insulin and that they are morphologically different in different species.

A panel discussion by Fajans, Floyd, Knopf and Conn was held on the secretion of insulin induced by leucine in healthy subjects. They conclude "that increased release of insulin is the primary mechanism by which leucine causes a fall in blood glucose in sulphonyl urea induced as well as in naturally occurring hypoglycemia. The hypoglycemic effect is due to decreased hepatic glucose output as well as increased peripheral utilization."

The immunology of homologous and heterologous pancreatic insulin was presented by Reynold, Soeldner and Steinke. Using adjuvants, it was found that cows developed antibodies to both bovine insulin and porcine insulin. The authors feel further that circulating insulin differs antigenically from highly purified pancreatic insulin; the cause of this is unknown although the conse-

quences leave open more avenues of speculation as to antigen antibody reactions as a possible cause of diabetes.

The levels of plasma insulin in normal and diabetic patients have been a source of much interest to the medical profession. Hales discusses this in light of a new technique of measuring plasma insulin. These studies indicated that in diabetes with ketosis there was a low plasma insulin. In the milder diabetics "there was a progressive loss of the ability to increase plasma insulin following oral glucose administration." In even milder cases, the plasma insulin was higher than normal indicating an inability to respond to endogenous insulin. The author postulates that diabetes may be brought about by a situation which overworks the beta islet cells early in the course, and thus leads to exhaustion of the beta cells ability to produce insulin.

The matter of insulin antagonism is reported on by Kipnes and Hein. The physiological antagonists of insulin are growth hormone and the adrenoglucocorticoids. This effect is apparently the result of a decrease phosphorylation of striated muscle and a depression of "insulin responsiveness of the glucose transport system of both striated muscle and adipose tissue." Human growth hormone activity does not bring about an increased output of insulin as might have been expected. Another point of interest in this report was the review of the effects of albumen on glucose oxidation; actually synalbumen stimulated glucose oxidation and this is an insulin like effect. The authors discussed the effects of insulin on muscle, and adipose tissue. For example, it was noted that with moderate sized doses of insulin the glucose uptake of fatty tissue and muscle was increased; also free fatty acid release was reduced. In smaller doses only the free fatty acid release was inhibited and the glucose uptake of both fat and muscle was unaffected.

In the past it has been felt that the fatty acid disturbance in diabetes mellitus was secondary to the upset glucose metabolism, but Randle, Garland, Hales, and Newsholme suggest the relationship between the two is reciprocal. They point out that glucose metabolism inhibits the release of and the oxidation of fatty acids in fat and

muscle. On the other hand, when fatty acids are released and metabolized, it inhibits glucose metabolism. In other words, the body's fat store is an energy source for muscle; when glucose is not being metabolized. The fatty acid when freed from its union with glycerol in the adipose tissue is carried by the blood stream to the muscle where it is prepared for metabolism by forming fatty acetyl coenzyme A; it can then be oxidized or it can reform neutral fats with glyceride. Insulin "stimulates glucose uptake in adipose tissue and muscles and thereby promotes esterification of fatty acids in both tissues; it also inhibits lipolysis in adipose tissue but not in muscle." Growth hormone and corticosteroids tend to have the opposite effect. In human diabetes, it is of importance to know if the rapid release of fatty acids is responsible for the loss of sensitivity to insulin, and if this causes the diabetic type of glucose tolerance with the beta cell injury. Randle et al state that in normal people, oral glucose resulted in high blood glucose and insulin levels and a decline in plasma fatty acid. In diabetics, oral glucose was followed by an elevated blood glucose and insulin but the plasma fatty acids remained high; it appeared that the high plasma sugar remained elevated until the plasma fatty acids fell to normal.

Vallance-Owen states that plasma albumen of diabetics contains a substance which is antagonistic to insulin, probably it is derived from some substance other than the albumen itself. Normal people have this antagonism but diabetics have this to a marked degree, and families of diabetics may have this to a marked degree even if they do not become diabetic.

Bornstein, Hyde, and Catt described two pituitary polypeptide antagonists of insulin; their importance is still unknown.

Butterfield believes that diabetes is probably multifactorial in origin. He feels that alterations in the chemical composition of the body's periphery possibly have an important part in controlling of insulin clearance; he speculates that this is due to chemical substances as nucleotides.

This fascinating colloquium is worthy of study by all physicians.

MEDICINE IN THE



Donors to the Memorial and Honor Fund of the University of Arkansas School of Medicine

In Memory of Edward Kellum Hyatt

Dr. and Mrs. Spencer D. Albright
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Monticello, Arkansas

program for residents in both pathological anatomy and clinical pathology. This is complete approval for a four year program. Previously the program was approved for up to three years of training in pathological anatomy. Both of these programs received full credit for American Board of Pathology certification.

The department is staffed by three pathologists. Over two hundred postmortem examinations are performed each year, approximately nine thousand surgical pathology specimens examined and 265,000 clinical laboratory procedures. There is an active cytology service, special chemistry and a radio-isotope department, in addition to all the usual services.

The School of Medical Technology of the Arkansas Baptist Hospital was recently approved by the Board of Schools of the American Society of Clinical Pathologists and the American Medical Association. Students are accepted after three or more years of college with transcript approval by the Board of Schools. The course is for one year and leads to eligibility for certification as a medical technologist MT (ASCP). The first student to be enrolled is Miss Ruth Stroope, from the Ouachita Baptist University.

THE MONTH IN WASHINGTON

Washington, D.C. — Health, Education and Welfare officials are drafting rules and regulations for operation of the new Social Security medicare law.

The new law provides for persons 65 years and older a basic hospitalization plan financed with Social Security taxes and a subsidized, voluntary, supplementary medical insurance program. Both programs will start July 1, 1966.

The existing Kerr-Mills program of medical assistance to the needy and near-needy aged is expanded and combined with all the other federal-state medical assistance programs into one plan with simplified administration, a uniform grant formula, specified benefits and minimum

Training Program at Arkansas Baptist Hospital

The Department of Pathology of the Arkansas Baptist Hospital has recently received full approval by the Council of Medical Education of the American Medical Association of its training

eligibility requirements.

Self-employed physicians are brought under Social Security retroactive to Jan. 1, 1965. They will be required to pay next April \$259.20 each in Social Security taxes for this year. The tax will go up to \$405.90 for 1966 and rise over the years to \$514.80 by 1987. Physicians were the last profession to be covered by Social Security and the only group to be forced into the system over the protests of its professional organization.

Coverage and liability for taxes for interns and residents will not begin until Jan. 1, 1966.

The new law also increases Social Security cash benefits by an average of seven per cent, retroactive to Jan. 1, 1965.

To finance the new health care programs and the increase in cash benefits, both the Social Security tax base and tax rates will be increased. The tax base will be increased from the present \$4,800 of workers' annual pay to \$6,600 on Jan. 1, 1966.

Arthur E. Hess, who has been with the Social Security Administration since 1939 and in charge of disability insurance since 1954, has been named to head up the new SSA Bureau of Disability and Health Insurance to handle the medicare program. A spokesman said the SSA, which now has 35,000 employees, will add between 7,000 and 8,000 more in the next year to administer the program.

President Johnson went to Independence, Mo., to sign the legislation (H.R. 6675) July 30 in the presence of former President Harry S. Truman who 20 years ago proposed in his legislative program a national medical insurance plan for all ages financed by higher Social Security taxes.

Commenting on the medicare program becoming law, F.J.L. Blasingame, M.D., executive vice president of the AMA, said in Chicago:

"We will watch developments in this new program and offer constructive suggestions, both to Congress and to the administrators of the program, in the interest of the maintenance of the highest quality of medical care.

"President Johnson has requested that we meet with officials of the Department of Health, Education and Welfare on the development of rules and regulations.

"Following our conference with Mr. Johnson on Thursday (July 29), initial meetings were held with HEW Secretary Anthony Celebrezze, exploring arrangements for AMA and HEW review of

projected regulations and of problems of administration and interpretation of the law.

"The President also asked that we report back to him in two months on our progress."

The White House conference between Johnson and 11 top AMA elected and staff officials, developed from an action of the AMA House of Delegates in New York last June. The House approved a resolution including the following two resolves:

"Resolved, That this House of Delegates restate its offer to meet with the President of the United States through our Legislative Task Force to discuss proposed medical care legislation with a view to safeguarding the continued provision of the highest quality and availability of medical care to the people of the United States . . .

"Resolved, That the American Medical Association strongly urge those branches of the government interested in the formulation, the enactment, and the implementation of laws which deal with the provision of professional medical services to the public to seek and utilize the advice and assistance of the physicians who will render such services. Such advice and assistance should be received through our chosen representatives, the officers of the American Medical Association . . ."

The first AMA-HEW conference on medicare at the staff level was held in Washington a week after the program became law.

HEW was consulting representatives of the American Hospital Association even before the legislation was signed into law.

The Social Security Administration, in administering the basic and supplementary health care programs, will utilize Blue Cross, Blue Shield, private health insurance carriers or combinations of them as "fiscal intermediaries." At this writing, they had not been named.

HEW said the physician will be the key figure in the basic as well as the supplementary program. He will decide upon admission to a hospital or posthospital extended care facility, order tests, drugs and treatment, including home health services, and determine the length of stay, HEW said.

As to length of stay, however, hospitals and extended care facilities participating in the program will be required "to have in effect a utilization review plan providing for a review of admissions, length of stays and the medical neces-

sity for services provided."

Such reviews "would ordinarily be carried out by a staff committee of the institution," and include other professional personnel such as registered nurses and medical social workers in addition to two or more physicians.

As an alternative, HEW said, reviews could be conducted by a similar group outside the institution — preferably one established by the local medical society and some or all of the hospitals and extended care facilities in the locality.

Under the supplementary program, the patients could pay the doctor and be reimbursed 80 per cent of a "reasonable" fee. If the doctor so chose, he could let the patient assign to him the amount the patient would be reimbursed. If payment is on the basis of an assignment, the "reasonable" fee would have to be accepted as the full payment. If the physician receives payment only directly from the patient, he can charge the amount he chooses regardless of what is determined to be a "reasonable" fee.

In determination of a "reasonable" fee, HEW said, the supplementary insurance carriers, must "assure that the charge on which the reimbursement is based is reasonable and is not higher than the charge used for reimbursement on behalf of the carriers own policyholders or subscribers for comparable services and under comparable circumstances."

Summary of Law's Health Care Provisions

BASIC PROGRAM

Hospitalization

Up to 90 days in each spell of illness. The patient pays the first \$40 of hospital costs. If he stays more than 60 days, he pays \$10 for each additional day up to the 90-day limit. A spell of illness starts with the first day of hospitalization and ends when the patient has spent 60 consecutive days without hospital or nursing care.

The hospitalization covers room and board, prescribed drugs while hospitalized and other services and supplies except private duty nursing and services of physicians other than interns or residents in training. Christian Science sanatoriums and psychiatric hospitals are included. There is a lifetime limit of 190 days in a psychiatric hospital.

Nursing Home Care

Up to 100 days in an extended care facility in each spell of illness after a stay of at least three

days in a hospital. There is no charge to the patient for the first 20 days. The patient pays \$5 for each day above 20, up to the 100-day limit.

Home Nursing

Up to 100 visits by nurses or technicians in a one-year period following the patient's discharge from a hospital or extended care facility. The services furnished must be in accordance with a program set up and periodically reviewed by a physician.

Diagnostic Services

Tests and related diagnostic services, other than those performed by physicians, that are normally provided by hospitals to out-patients. The patient pays \$20 of the charge for each diagnostic study provided by the same hospital in a 20-day period. The patient pays 20 per cent of the charges above \$20.

SUPPLEMENTARY PROGRAM

Persons enrolling in this program will pay \$3 a month in premiums. The federal government will match this with a payment of \$3 a month for each participant. The federal share, about \$600 million a year, will come from general tax revenues. The insurance supplements the basic program by covering most other major medical expenses except those for dental services, medicines and drugs.

A participant in the program pays \$50 of his annual costs for the services and supplies covered. He also pays 20 per cent of the annual costs above \$50 while the program pays 80 per cent.

The coverage includes:

Physicians' services, including surgery, whether performed in a hospital, clinic, office or home.

Up to 100 home nursing visits each year in addition to those allowed under the basic program and without any requirement for prior hospitalization.

Various services and supplies, whether provided in or out of a medical institution, such as X-ray and other diagnostic tests, radio-logical treatments, surgical dressings, splints, casts, iron lungs and other specified prosthetic devices, artificial arms, legs and eyes and ambulance service.

WELFARE AID

The bill authorizes increases of about \$400 million in annual federal grants to states for public assistance (relief of the needy) and other welfare programs. It consolidates the Kerr-Mills medical assistance program with five related programs and

sets federal standards for the scope of benefits and eligibility of beneficiaries.

A new program of health care for children in impoverished families is established, with \$185 million in grants authorized for the first five years. Grants for maternal and child health services and aid to crippled children are raised in four steps from the present level of \$80 million to \$120 million in 1970.

By revising the general formula for public assistance grants, the bill raises annual federal authorizations by \$150 million.

THINGS



TO COME

IX International Cancer Congress

In connection with the IX International Cancer Congress, which will take place in Tokyo, Japan, October 23-29, 1966, a charter flight and several group flights are contemplated, thus substantially reducing the cost of transportation. Members of the immediate family of congress participants will be eligible. Anyone interested should communicate with Hirsch Marks, M.D., 435 East 57th St., New York 22, N.Y.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Perforation of the small bowel with a portion of a tablet of medication lying within the ulcer.

X-RAY FINDINGS: Films of the abdomen show the opaque tablet of exactly the same configuration as that in the operative specimen of resected small bowel. Some scattered bowel gas is noted on the film without obvious evidence of obstruction. An abnormal collection of gas high in the right upper quadrant over the liver is probably free intraperitoneal air.

References: JAMA 191:641, 1965. Canadian Medical Association Journal 92:176-179, 1965.

RESOLUTIONS



RESOLUTION

WHEREAS, the passing from this life of Dr. W. B. Grayson, a valued member of the medical community and of the Pulaski County Medical Society for many years, is noted with sincere sorrow, and,

WHEREAS, Dr. Grayson served with devotion and skill as Health Officer for the State of Arkansas, and,

WHEREAS, Dr. Grayson had attained unequalled respect for his contribution to health of the people of this state;

BE IT THEREFORE RESOLVED, that the Pulaski County Medical Society express to his family the sympathy of this organization,

THAT, a copy of this resolution be made a matter of record in the permanent records of the Society,

THAT, a copy be sent to his family, and

THAT, a copy be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
Pulaski County Medical Society

ANSWER—Electrocardiogram of the Month

BLOOD PRESSURE: 110/65/65

CARDIAC DIAGNOSIS: Post-operative mitral valvulotomy

INTERPRETATION:

Rate: 75 Rhythm: Normal sinus rhythm with bigeminy due to premature ventricular contractions.

PR: .18 QRS: .08 QT: .40

ABNORMAL. Unifocal premature ventricular contractions are seen occurring after each sinus beat producing a bigeminal rhythm. Prominent U waves in V3 and V4 suggest the possibility of hypokalemia.

COMMENT: The abnormal rhythm disappeared with reduction in digitalis dosage.

T. Duel Brown, M.D., Chairman
Gordon Holt, M.D.
Forrest Henry, M.D.

RESOLUTION

WHEREAS, the power greater than ourselves has deemed it necessary to take from us one of our faithful and beloved physicians; we the members of the Arkansas State Board of Health have learned with deep regret of the passing of a former State Health Officer, Dr. W. B. Grayson; and,

WHEREAS, Doctor Grayson, for ten years served the state as State Health Officer and Secretary of the State Board of Health, and served as President of the Association of State and Territorial Health Officers, and contributed much to the cause of public health in Arkansas and the

nation as a whole, and,

WHEREAS BE IT RESOLVED that the members of the Arkansas State Board of Health, in regular session this 22nd day of July, 1965, hereby express their sorrow over the passing of their friend and former State Health Officer and extend their sympathy to his family, and place in the records of this meeting this resolution as a tribute to his memory,

BE IT FURTHER RESOLVED that a copy of this resolution be sent to Doctor Grayson's family and that the resolution be published in the Journal of the Arkansas Medical Society.

Davis W. Goldstein, M.D.
President, Arkansas State
Board of Health
July 22, 1965



PERSONAL AND NEWS ITEMS

Coaching Clinic Held

The annual Arkansas High School Coaches' Association coaching clinic was held at the University of Arkansas Medical Center in July and August. The clinic was held under the guidance of Dr. Benjamin Drompp, head of the division of orthopedic surgery at the Medical Center. Dr. Hoyt Kirkpatrick of Fort Smith, Dr. Kenneth Jones of Little Rock and Dr. Charles G. Smith of Texarkana, all orthopedic surgeons, also participated in the clinic.

North Little Rock Has New Doctors

Five new doctors have recently located in North Little Rock. They are: Dr. Jerry Young, urologist; Dr. Ernest Harper, internal medicine; Dr. Charles R. Fielder, surgeon; Dr. Robert Paul, radiologist; Dr. T. S. Arrington, dermatologist.

Drs. McCurry and Goldstein Honored

The Arkansas State Board of Health has passed a Resolution of Appreciation in honor of Dr. J. H. McCurry of Cash, Arkansas, and Dr. D. W. Goldstein of Fort Smith, Arkansas for contributing their time and talent in developing and

strengthening the 50-Year Club of the American Medical Association and the 50-Year Club of the Arkansas Medical Society. Dr. McCurry is presently the Secretary of the 50-Year Club of American Medical Association and Dr. Goldstein is President of the organization.

New Hospital for Searcy

Groundbreaking ceremonies were held in August for the new White County Hospital in Searcy. The hospital is to be completed in approximately one year.

Dr. Kagy Opens Office

Dr. John K. Kagy has opened his office for the practice of medicine at 8609 West Markham in Little Rock, Arkansas.

Dr. Shonyo Joins Clinic

Dr. Elwyn S. Shonyo has joined the staff of the Saltzman-Guenther Clinic in Mountain Home. He is a native of Lynwood, Kansas, and he specializes in general surgery.

Russellville Has New Doctor

Dr. George O. Thomasson, a general practitioner, has opened offices in Russellville. He is a 1962 graduate of Southwestern Medical School in Dallas, Texas.

Dr. Gillespie Receives Award

Dr. Clark Gillespie, assistant clinical professor of obstetrics and gynecology at the University of Arkansas Medical School and Arkansas Baptist Hospital, received a Certificate of Merit for his first place entry in the obstetrics and gynecology section of the American Medical Association's scientific exhibits at the recent convention at New York.

Dr. Muse Practices in Piggott

The Piggott Hospital has announced that Dr. Jerry Muse has joined its medical staff. He is a native of Piggott and graduated from the University of Arkansas Medical School in 1962.

Three New Staff Psychiatrists at Hospital

Dr. George W. Jackson, superintendent of Arkansas State Hospital, announced that three psychiatrists who have completed the Hospital's three year training program for psychiatric residents will remain in Arkansas as staff psychiatrists at the hospital. The three are Dr. Jack Eardley of Glenwood, Dr. Robert L. Lewis of Hot Springs, and Dr. Richard E. Walters of Kansas.

Dr. Poindexter to Conway

Dr. Ann Robbins Poindexter has joined the medical staff at Arkansas Children's Colony in Conway. Dr. Poindexter's husband, Dr. J. D. A. Poindexter will become associated with the Conway Clinic in September.

Dr. Ellis Is Speaker

Dr. C. Randolph Ellis of Malvern spoke to the Malvern Civitan Club in July. He discussed the Medicare Bill and the effects of it on the Social Security Tax.



O B I T U A R Y

Dr. J. G. Gladden

Dr. J. G. Gladden of Harrison died August 12, 1965, at the age of 77. He was graduated

from the University of Arkansas Medical School in 1911 and practiced at Western Grove until 1935. He then moved to Harrison and built the Harrison Clinic, the city's first hospital facility. Dr. Gladden was a member of the American Medical Association, the Arkansas Medical Society and the Boone County Medical Society. He was honored in 1961 by the AMA and the Arkansas Medical Society and received a 50-year club citation and a life membership in the State society. He was a member of the state Board of Health for twenty years and a former president of the Board. He was an elder in the First Presbyterian Church of Harrison and a past president of the Harrison Lions Club. He is survived by his widow, Mrs. Willie Carlton Gladden; Dr. Jean Gladden, of Harrison, a son; another son and one daughter.



N E W M E M B E R S

A new member of Saline County Medical Society is DR. JOHN P. THOMPSON. He is a native of Curtis, Arkansas, and he received his preliminary education from Henderson State Teachers College. He was graduated from the University of Arkansas School of Medicine in 1948 and he interned at Missouri Pacific Hospital in Little Rock. Dr. Thompson's specialty is psychiatry and he is with the Benton Unit of the Arkansas State Hospital at Benton, Arkansas.

Saline County Medical Society announces that DR. WALTER S. MIZELL has been added to its roster of members. He was born at Corning, Arkansas, and received his pre-med from Ouachita Baptist College. In 1950 he received his M.D. degree from the University of Arkansas School of Medicine and he interned at Madigan Army General Hospital in Tacoma, Washington. He has served for 27 years in the U.S. Army. Dr. Mizell's

specialty is psychiatry and he is presently Assistant Superintendent at the Arkansas State Hospital in Benton, Arkansas.

DR. THOMAS K. BEENE is a new member of St. Francis County Medical Society. A native of Hughes, Arkansas, he received his preliminary education from Arkansas State College. He then enrolled at the University of Arkansas School of Medicine from which he was graduated in 1964. He interned at Hillcrest Medical Center in Tulsa, Oklahoma. Dr. Beene is a general practitioner and his office is at Second and Broadway in Hughes, Arkansas.

St. Francis County Medical Society announces that DR. ROBERT M. FINCH is a new member. He is a native of Little Rock, Arkansas, and he received his pre-med from Hendrix College in Conway. He received his M.D. degree from the University of Arkansas School of Medicine in 1964 and he interned at Arkansas Baptist Hospital in Little Rock. He has served for four years in the U.S. Air Force. Dr. Finch's office address is 1740 Lindauer Road in Forrest City, Arkansas. He is a general practitioner.

DR. ROBERT PRUITT HARDIN is a new member of Miller County Medical Society. He is a native of Mobile, Alabama, and he received his preliminary education from St. Louis University. He was graduated from the University of Arkansas Medical School in 1960 and he interned at St. Vincent Infirmary in Little Rock. He served in the U.S. Army from 1961 until 1963. Dr. Hardin's specialty is anesthesiology and his office address is Fifth and Walnut in Texarkana, Arkansas.

A new member of Baxter County Medical Society is DR. ELWYN S. SHONYO, a native of Lyndon, Kansas. He received his pre-med from Kansas State University and he received his M.D. degree in 1937 from the University of Chicago Medical School. He interned at Illinois Central Hospital. Dr. Shonyo is a general practitioner and general surgeon and his office address is 126 West Sixth Street in Mountain Home, Arkansas.



BOOK REVIEWS

SURGERY OF THE BILIARY PASSAGES AND THE PANCREAS, by Walter Hess, M.D., Privatdozent Dr. med., Zurich, Dozent of Surgery, Faculty of Medicine, University of Basle, Switzerland, Formerly Professor of Surgery, Medical School, University of Alexandria, Egypt; pp. 638, illustrated, published by D. Van Nostrand Company, Inc., Princeton, N.J., April, 1965.

This is an unusually fine textbook. It is well illustrated, and there are many references. It goes into details of surgical technique in addition to discussing the theoretical implications of various diseases. The book will be of interest to the gastroenterologist and to the abdominal surgeon. It is of limited interest except as a reference book to other physicians. AK

Tracy's *THE DOCTOR AS A WITNESS*, Second Edition, by William J. Curran; LL.M., S.M. Hyg. Edward R. Utley, Professor of Legal Medicine and Director, Law-Medicine Institute, Boston University, pp. 196, published by W. B. Saunders Company, Philadelphia, London 1965.

Any physician may be called on as a witness in a legal proceeding. This small textbook discusses some of the things the doctor must consider in his testimony. It discusses the preparations for the trial, what makes a good medical witness, privileges, expert testimony, direct examination, cross examination, Workmen's Compensation cases, malpractice cases, fees, etc. It is a very worthwhile small textbook. AK

RHEUMATIC FEVER, Diagnosis, Management and Prevention, Volume II in the Series MAJOR PROBLEMS IN CLINICAL PEDIATRICS, by Milton Markowitz, A.B., M.D., Assistant Pediatrician-in-Chief, Sinai Hospital of Baltimore; Associate Professor of Pediatrics, Johns Hopkins University School of Medicine; Pediatrician-in-Charge, Rheumatic Fever Clinic, Harriet Lane Home Service, Children's Medical and Surgical Center, The Johns Hopkins Hospital, and Ann Gayler Kuttner, B.S., Ph.D., M.D., Associate Professor of Pediatrics, Emeritus, New York University, Bellevue Medical Center; Visiting Scientist, Streptococcal Disease Laboratory, Sinai Hospital of Baltimore, pp. 242, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1965.

This Volume II in the Series MAJOR PROBLEMS IN CLINICAL PEDIATRICS is well written and comprehensive. It has nothing very new in it and most of the material is covered in the standard textbooks of cardiology. The book has a number of charts, a moderate number of illustrations, and an excellent bibliography. It is recommended to those wishing a fairly comprehensive, fairly small handbook of rheumatic fever. AK

Dorland's Illustrated *MEDICAL DICTIONARY*, 24th Edition, Numerous editorial consultants, illustrated, pp. 1724, published by W. B. Saunders Company, Philadelphia and London, 1965.

This medical dictionary is a standard and is excellent. It is in its 24th edition. It has an excellent group of editorial consultants and contributors. It includes chapters on medical etymology. It is well bound and as reasonably compact as a book of this sort can be. It is heartily recommended to the profession as a reference dictionary. AK



Sponsored by Arkansas Tuberculosis Association

ANTIBIOTIC PROPHYLAXIS IN ACUTE VIRAL RESPIRATORY DISEASES

Carefully controlled trials have not shown that antibiotics are effective in preventing bacterial complications in the common cold. Any unnecessary use of antibiotics should be avoided.

The common cold is everyone's disease and has caused a profusion of all kinds of nostrums. The great losses from morbidity and great cost of remedies, home and prescribed, necessitate critical evaluation of optimum therapy. Since recovery almost always occurs, evaluation of therapy is difficult.

Prophylactic antibiotics have often been recommended and used in these diseases to prevent bacterial complications. The word prophylaxis literally means prevention of or protection from disease. Prophylactic drugs may be given to prevent disease in a normal person or to prevent complications in a person who is ill. Antibiotic prophylaxis cannot be evaluated when bacterial complications already are present.

Antibiotic prophylaxis of acute respiratory disease is generally based on the hypothesis that viral infections lower the resistance of the host and allow the normal bacterial flora to cause infections.

Experience has shown that the risk of superinfection or the acquisition of a new organism is high with broad-spectrum antibiotics and not insignificant with penicillin. The concept that antibiotic prophylaxis will regularly suppress the normal flora has not been substantiated.

Since the effect of placebo on symptoms in acute respiratory diseases has been established by controlled studies, it is essential that therapy trials be double blind. Results with the drug under study should be compared with those of a placebo or with symptomatic treatment, and neither the patient nor the physician should know which patient receives which treatment.

STARKEY D. DAVIS, M.D., and RALPH J. WEDGWOOD, M.D.; *American Journal of Diseases of Children*, June, 1965.

Since even experienced clinicians may miss streptococcal disease and since streptococcal infections will respond to antibiotics, it is essential in these trials to exclude streptococcal disease.

TRIALS REVIEWED

In a review of a number of controlled trials among children, adult volunteers, and military personnel, both in the United States and Great Britain, it was found that the use of antibiotics was not effective in preventing complications of measles, influenza, or the common cold when streptococcal disease was excluded.

In fact, neither continuous nor intermittent antibiotic prophylaxis has been shown to alter the clinical course or reduce the complication rate of these diseases.

It must be recognized that the type of population studied may have an effect on the outcome of the trial. For example, the results of trials on military personnel may have only limited application. Military populations are composed of essentially healthy young adults. Many military bases have no place other than the hospital to care for mild illnesses. Consequently, military hospital patients may represent milder disease than that seen at a civilian hospital.

Civilian study populations may differ also. Only the more severe cases may be admitted to a hospital. Furthermore, many civilian hospital patients may have rheumatic heart disease, emphysema, bronchiectasis, or some other chronic disease.

Some British groups have reported beneficial results from antibiotic prophylaxis in groups of miners with pneumoconiosis, children with recurrent infections, and others.

These findings cannot be reconciled with those of well-controlled trials in which anti-biotics were not found effective. Possibly a factor in the British trials is the prevalence of chronic bronchitis, in which prophylactic antibiotics have proved effective.

DEFINING COMPLICATIONS

Even in the face of certain reservations about some of these trials, it is apparent that prophylactic antibiotics will not alter the primary course of acute respiratory disease and will not prevent bacterial complications in healthy persons. Additional trials are needed in special groups such as children with congenital heart disease, pregnant women, and patients with chronic pulmonary diseases, since prophylactic antibiotics have not been thoroughly evaluated in these conditions.

A problem central to all these trials is the definition of a bacterial complication. The appearance of a new sign or symptom does not necessarily represent a complication and is not always an indication for antibiotics.

Pneumonia may be taken as an example of the problems of defining a complication. Influenza viruses can cause pulmonary infiltrates. Pneumococci are often cultured from sputum or pharyngeal swabs of normal persons. Thus, a sputum culture positive for pneumococci from a patient with influenza and a pulmonary infiltrate is not necessarily proof of a bacterial pneumonia. Perhaps the problem of proving bacterial pneumonia in patients with viral respiratory disease could be approached with frequent, quantitative bacterial counts of the sputum or by lung puncture.

The appearance of new signs or symptoms is not adequate proof of a bacterial complication

of acute respiratory disease but is an indication for further examinations or tests.

Sometimes it is said that antibiotics may not help the patient but at least they will not hurt him. The use of antibiotics without reasonable indication is no more rational than the administration of digitalis to a patient without heart disease or morphine to a patient without pain. Antibiotics often cause harm. They are potent agents and should not be given frivolously.

As a guide to therapy, the following statements are now well substantiated:

1. The great majority of acute respiratory illnesses are not bacterial.
2. Antibiotics have no effect on the primary course of viral respiratory diseases and thus have no place in their primary treatment.
3. Prophylactic antibiotics have not been shown to prevent bacterial complications of acute respiratory disease and are not generally indicated.

The patient with measles or influenza with a pulmonary infiltrate is not a problem of prophylaxis but of differential diagnosis. Patients with a cough but without pulmonary infiltrate can usually be managed without antibiotics. The more seriously ill patients require careful evaluation and appropriate cultures. There is little disagreement about the use of antibiotics in the severely ill patient when bacterial pneumonia cannot be excluded.



Gaisbock's Disease: Redefinition of an Old Syndrome

C. A. Hall (VA Hosp, Albany, NY) *Arch Intern Med* 116:4 (July) 1965

The present study was concerned with a group of 20 patients who were thought to have polycythemia vera or secondary polycythemia but actually had something clearly different. Some patients had an elevated hematocrit value due solely to the combination of a normal total red-blood-cell volume with a low total plasma volume. This state was referred to as pseudopolycythemia. Many had a syndrome referred to as Gaisbock's syn-

drome. There was either a pseudopolycythemia or increased red-blood-cell volume. Vascular disease and hypertension were common. Splenomegaly and pannmyelosis were absent. The syndrome was familial in two cases. The data and conclusions of Russell and Conley (in addition to their other data) are presented in a more detailed form in an article which was published after this manuscript was submitted for publication. The cases presented by Russell and Conley and those presented here are so similar that it is obvious that the author is describing the same syndrome.

OPPORTUNITIES TO PRACTICE MEDICINE IN ARKANSAS

- AMITY.** population 550. No doctor in community. 8 miles to nearest doctor. Citizens anxious to assist doctor in establishing practice.
- BEARDEN.** Population 1,268, no physician in community. Principal source of income for area is industrial payroll. Community has supported physician for many years. 16 miles from Camden.
- BRYANT.** Population 800. Just 2 miles off Natl. Interstate Hwy. 20. Physician at Bryant would offer closest med. service to Reynolds Metal. New shopping center has office space for physician.
- CARAWAY.** Population 911. GP needed. Several surrounding towns without physician. Modern office building available.
- CAVE CITY.** Population 600. No physician in county. Located near county line, nearest hospital 14 miles. New building constructed to house physician's office.
- CLARENDON.** Population 2,300. One physician has practiced in Clarendon 15 years. Definite need for another physician. Clinic building available.
- CLINTON.** Population 744. One doctor in community who serves large part of the county. 13-bed hospital in Clinton.
- COTTER.** Population 700. Community without physician. City Council sponsoring drive to get physician to locate in Cotter.
- COTTON PLANT.** Population 1,800. Physician who had practiced in community many years passed away in 1964. Replacement needed. New office building available.
- FAYETTEVILLE.** Office space for rent in building with a general practitioner. Opportunity to fill in for physician during his absence.
- FAYETTEVILLE.** Office space available in new building across from City Hospital. Adequate parking space. Good opportunity for practice in ENT, Geriatrics, or as GP.
- FORT SMITH.** (1) Opportunity to associate with young GP. Guaranteed income for first year. (2) Urologist and Orthopedist with Clinic, present staff of 8, none in these specialties. (3) Opening in either internal medicine or pediatrics in new, modern office building. Nine physicians with offices in building (2 internists, no pediatrician). Individual practice. (4) Opportunity to associate with two GP's. Salary at first, increasing percentage until full partnership. (5) Opening for Urologist. Associate with individual in practice. This city is center of rapidly expanding industrial area.
- HARRISON.** Physician needed to take over practice of E.N.T. man who passed away. Northwest Arkansas. Population 6,500.
- HARDY.** Population 599. Community without physician. Nearest hospital 34 miles away. Resort area development.
- HUMPHREY.** Population 700. No doctor in community. Nearest one ten miles away. Office space can be furnished.
- LEPANTO.** Population 1,500. Modern clinic available. Only one physician in community.
- LESLIE.** Population 500. Community without doctor. Ten bed hospital nearing completion.
- LITTLE ROCK.** Opportunity for Orthopedist with group. New office building.
- LUXORA.** Population 1,236. Community has been without full-time physician several years. Clinic available which is partly equipped.
- MARSHALL.** Population 1,500, large trade area. 24-bed hospital for sale or lease. One doctor doing limited practice in community.
- MARION.** Physician must give up his practice because of his health and would like to have young man take over practice. Nine room clinic available. Population about 900.
- MOUNT IDA.** New hospital being completed. Chamber of Commerce interested in having another doctor locate in community.
- NEWARK.** Population 1,000. Lions Club sponsoring drive to get doctor for community. New brick office building available.
- NEWPORT.** Population 8,500. Opportunity to associate with clinic. Either general practitioner or pediatrician wanted. Guaranteed salary at first.
- PINE BLUFF.** Opportunity to take over practice and/or purchase equipment of GP who is going into public health work. GP's really needed in this city.
- RUSSELLVILLE.** Opportunity for GP with clinic. Present five man staff.
- SWIFTON.** Population 600. Community without physician. Nearest hospital 20 miles.
- STRONG.** Population about 850, no doctor in community. Fully equipped 3-bed clinic could be rented or purchased.
- TAYLOR.** Population 752. Modern clinic vacant, will be furnished with modern equipment. 8 miles to nearest hospital.
- TEXARKANA.** Population 50,000. Office building for rent. Formerly occupied by GP. Would accommodate two physicians. Near hospital.
- McNEIL.** Population 746. Near Magnolia. No doctor in community. Local Lions Club interested in seeing doctor locate there.

For further information on these and other locations contact:

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Pyloroplasty and Vagotomy in Treatment of Duodenal Ulcers — A Preliminary Report

Bernard W. Thompson, M.D.* and Raymond J. Lipin, M.D.**

For many years the emergency operation of choice for bleeding duodenal ulcer has been gastric resection with excision of the ulcer. Postlethwait¹ recently reported the results of subtotal gastrectomy for bleeding ulcer in 12 Veterans Administration Hospitals showing a mortality for emergency operation of 24.8%. Unfortunately, during the past decade the mortality rate from bleeding duodenal ulcer has increased slightly despite increased utilization of surgical treatment. During the past 15 years Schnug,² Stewart,^{3,4} Darin,⁵ Karlson,⁶ Weber,⁷ and Bowers,⁸ have all reported large series of bleeding duodenal ulcers treated by subtotal gastrectomy. The mortality rates in these large series have varied from 10-28%.

In 1958, Westland and others⁹ reported no deaths in 24 patients using ligation of bleeder plus pyloroplasty and vagotomy. Subsequent reports by Farris,^{10,11} Weinberg,¹² and Dorton¹³ give mortality rates varying from 0-4% when bleeding duodenal ulcer is treated by ligation plus pyloroplasty and vagotomy.

Postoperative complications and deaths are most frequent following emergency gastrectomy for hemorrhage. The second most common cause of morbidity and mortality following gastrectomy is the severely scarred pylorus or difficult duodenal stump. Postlethwait¹ reports a 2.6% mortality in this group. Schnug and Cavanagh² report a 10% mortality in the patient with the difficult duodenal stump. Here again Weinberg¹⁴ reports a mortality rate of less than 1% when using pyloroplasty and vagotomy. Hamilton and others¹⁵ state that they have the same long term

results with pyloroplasty and vagotomy but a much lower mortality rate than with subtotal gastrectomy.

With these considerations in mind, it was felt that we should first evaluate the use of pyloroplasty and vagotomy plus ligation of the bleeder in a series of duodenal ulcers with massive hemorrhage. Secondly, if this technique proved satisfactory, pyloroplasty and vagotomy would be evaluated in other complications of peptic ulceration where surgical intervention was indicated.

Operative technique: The operative technique used in all cases in this study is essentially that described by Kraft and Fry.¹⁶ The incision is an extended right subcostal crossing the midline, one half the distance between the xiphoid and umbilicus and carried 10 cm. over the left costal margin. The costal cartilages are not divided.

Duodenal ulcer with massive hemorrhage: After the standard incision is made, a gastroduodenotomy incision 10 cm. in length and equally divided between the stomach and duodenum is made. The bleeding point is firmly secured with a deeply placed non-absorbable suture inserted roughly parallel to the long axis of the pancreatic duct. A Finney type pyloroplasty is then carried out giving a gastroduodenal opening of 8-10 cm. A total abdominal vagotomy is then carried out dividing both the anterior and posterior vagal trunks as well as all other vagal fibers entering through the esophageal hiatus.

Duodenal ulcer with severe obstruction: After the standard incision is made the vagotomy is carried out. The vagotomy may be either a total abdominal vagotomy or of the selective type described by Burge¹⁷ and Griffith.¹⁸ A Finney pyloroplasty identical to that used for the cases

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with hemorrhage is then carried out. A temporary gastrostomy tube which is used for decompression as well as feeding is then inserted and brought out through the abdominal wall above the incision.¹⁹ All patients are seen at the end of six weeks when gastrointestinal series and Hollander Insulin Tests are carried out.

Material: During the period September 1, 1963 to September 1, 1964, 49 pyloroplasties and vagotomies were carried out for complication of peptic ulceration. The indication for surgical intervention is given in Table I:

TABLE I

Hemorrhage	20
Obstruction	23
Intractable or failure of medical management	6
Total	49

All of these patients are males. The age of patients range from 27 to 75 years. For distribution by age see Table II:

TABLE II

Age	
25-35	4
35-45	13
45-55	14
55-65	1
65-75	17
Total	49

Of the 49 patients, 23 had temporary decompression and feeding gastrostomies while 26 did not. Total abdominal vagotomies were carried out in 34 cases, selective anterior vagotomies in 12 cases and selective anterior and selective posterior vagotomies in 3 cases.

Results: The operation of pyloroplasty and vagotomy appears to be well tolerated by patients. They complain very little of abdominal pain during postoperative period. The operative time rarely exceeds two and one half hours. During the operative procedure 25 patients received no transfusions, and the most blood given to any patient including those operated for hemorrhage was 1500 cc. Despite a relative gastric atony most patients are able to take oral feeding by the fifth postoperative day.

Postoperatively these patients are given a regular three meal per day diet. When they are seen for their postoperative check-up at six weeks most of them have gained 5-10 pounds. Only 3 patients have a Hollander test which indicates an incomplete vagotomy.

The postoperative complications are shown in Table III:

TABLE III

<i>Complications</i>		
Wound infection	6	12%
Delayed emptying	3	6%
Transient diarrhea	2	4%
Temporary pancreatic fistula	1	2%
Died	1	2%

The most common complication was wound infection. Four of these infections occurred in the 23 patients in whom decompression and feeding gastrostomy tubes were used. Although these tubes are of value in maintaining nutrition while preventing gastric atony, the increased incidence of wound infection seen with their use would lead one to feel as though they should be used with caution.

Of the three patients with delayed emptying only two needed surgical intervention. The first of these had obstruction at the Finney pyloroplasty site due to adhesion of colon to the area and was cured by merely mobilizing the colon. The second was due to insertion of the gastrostomy tube below the abdominal incision and in this manner making the mid portion of the stomach, rather than the pylorus, the most dependent portion of the gastroduodenal channel.

Both of the patients with transient diarrhea had total abdominal vagotomies. The symptoms were of only 3-4 days duration and not considered of major importance by the patients.

The patient with the pancreatic fistula was a 75 year old white male with severe pyloric obstruction and an annular pancreas. The pancreatic fistula closed spontaneously two weeks following surgery.

The one mortality was a 68-year-old white male operated for hemorrhage. This patient had a myocardial infarction on the day following surgery and expired some three days later.

Discussion: Vagotomy, pyloroplasty and suture, in our hands, has provided a simple, safe means of immediate control of exsanguinating duodenal ulcer hemorrhage. The 2% mortality of the overall group, or 5% when considering only the cases operated for hemorrhage, is within the range reported by Weinberg,¹² Farris,^{10,11} and Dorton.¹³ It is certainly a much better result than has been obtained by subtotal gastrectomy.

Recently, Silen and Moore²⁰ have stated that recurrent hemorrhage has been seen frequently following pyloroplasty and vagotomy and have therefore advised that this modality be used with caution. Recurrence of bleeding also occurs fol-

lowing subtotal gastrectomy and is seen in 9-20% of cases.^{21,22,23} The recurrence of bleeding or ulceration following pyloroplasty and vagotomy is related to the ability to carry out an adequate total gastric vagotomy.⁷ In this series we have had no recurrences of bleeding from duodenal ulceration.

Burge¹⁷ in England has reported diarrhea following vagotomy in about 30% of his cases. He attributes this finding to total abdominal vagotomy. He has shown a marked decrease in the incidence of post-vagotomy diarrhea by the use of selective vagotomy. We have seen little diarrhea in our patients and therefore have returned to the concept of total abdominal vagotomy.

The rationale advanced for gastrectomy is that of removal of the acid-producing cells. Knowledge that this was not the case was established by histology and physiology as early as 1915.²⁴ The removal of the stomach frequently results in uncomfortable symptoms following eating and difficulty in gaining weight. Weinberg,¹⁴ in a series of over 1,000 cases of pyloroplasty and vagotomy, has shown lasting relief of ulcer symptoms is seen when this form of surgery is used. Even more important is the fact that with the stomach intact the incidence of dumping syndrome is far lower than with a resectional procedure, and weight gain can be accomplished if needed. In our series dumping syndrome has not been seen. Although the follow-up period is short, the patients are able to eat with ease and gain weight.

To demonstrate a statistically significant improvement in the treatment of duodenal ulcer, a series of at least 200 patients is needed. These must be followed after a period of at least seven years.²⁴ We hope to continue this study so that these criteria can be met.

Summary: (1) Pyloroplasty, vagotomy, and simple suture of the bleeding point should strongly be considered when dealing with a patient who is a poor risk and who is suffering from duodenal hemorrhage; (2) pyloroplasty and vagotomy for other patients with ulcer diathesis appears to give results comparable with resectional surgery with a much lower mortality; (3) recurrent bleeding and post-vagotomy diarrhea have not been a major problem in this series; (4) a larger series followed for a longer period of time will be necessary before definite conclusions and recommendations can be made.

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Ataxia-Telangiectasia: Further Observations and Report of Eight Cases

G. Karpati et al (2300 Tupper St, Montreal) *Amer J Dis Child* 110:51 (July) 1965

Eight cases of ataxia-telangiectasia, members of four unrelated families, are reported in detail. Six of these patients, their parents, and several siblings were available for clinical investigations. All the patients had the characteristic clinical features of progressive cerebellar ataxia starting in infancy, telangiectasiae of the bulbar conjunctiva and the skin, abnormalities of the extraocular movements, choreo-athetosis, hypoplastic peripheral lymphoid structures, and, in some cases, frequent sinopulmonary infections. Laboratory investigations revealed no abnormalities of endocrine function or catecholamine metabolism. Significant lymphopenia was found in all cases. Dysgammaglobulinemia (absent γ 1A-globulin), impairment of circulating antibody responses, delayed hypersensitivity, and transplant rejection were also noted. The literature pertaining to ataxia-telangiectasia is reviewed, and the pathogenesis is discussed with reference to the immunological and neurological features of the syndrome.

Clinical Results of Thromboendarterectomy for Peripheral Atherosclerotic Occlusive Disease

B. S. Goldman, R. O. Heimbecker and W. G. Bigelow (101 College St, Toronto) *Canad Med Assoc J* 92:1283 (June 19) 1965

Thromboendarterectomy of atherosclerotic vessels may restore luminal flow by removal of the occluding thrombus and thickened, ulcerated intima. The technique has been performed on 43 occasions for aortoiliac and femoropopliteal occlusive lesions with significant distal ischemia. The early and late results have been entirely satisfactory confirming the worth and durability of the procedure, particularly in cases of limb salvage. The widespread and progressive character of the atherosclerotic process, however, may compromise the operative and late results by involvement of vital arteries of distal small vessels. Complete angiographic assessment from the abdominal aorta to beyond the popliteal bifurcation is essential for proper selection of patients. Thromboendarterectomy is recommended for segmental occlusion primarily, but results may be obtained in extensive lesions unsuitable for bypass grafting.

THE REAL SELF

Herbert M. Perr, M.D.*

I would like to trace for you the evolution of Karen Horney's concept of Real Self. It is central to her theory of neurosis, and I believe an important key to understanding mental illness. The growth of this theoretical concept had been gradually developed in her writings from 1937 to 1952 in a series of books and papers.^{1,2,3,4}

As a result of her continuing explorations of human personality and character development, she discarded the libido theory of Freud, and in its place came to recognize the dynamic nature of "real self" and its struggles for realization. In the interest of clarity and wider communication, she substituted for the usual psychoanalytic lexicon, concepts that were more or less couched in everyday vocabulary. The expression of scientific knowledge need not necessarily be invested in complex terms. Horney used language as a way to keep open the process of continuing inquiry. She believed that openness could aid a person to understand himself, to further healthier self acceptance and healthier relating to others.

Before proceeding with the theme of this paper, I should like to digress a moment and comment on theory formation. It is said that similar psychotherapeutic results are obtained regardless of the theoretical grounding of the therapist. Analysts of different theoretical orientations have reported similar improvement rates. But to evaluate such a statement we must recognize that diagnosing, therapeutic techniques and goals vary so much that accurate comparisons have not been valid. Harold Kelman, Dean of the American Institute of Psychoanalysis, said this: "In general we know that as theories have evolved, therapeutic effectiveness has deepened and broadened. This is stating that our own theories today are better than they were 75 years ago. As to which of the theories available today is the better, is a matter of individual opinion and the evidence of their therapeutic effectiveness. What we must always keep in mind is that no theory is right, has all the answers, or final answers. Theories are human creations to help and to stimulate. They harm and destroy those who attempt to make of them dogmas. Theories are provisional conven-

iences . . . the productive theory is one that opens so many new horizons that it points to its own inadequacies and paves the way for a more comprehensive one. Only a theory of the open-end system variety can do this."⁵ Such an attitude and approach is evident in the recent book by Menninger, et al., *The Vital Balance*, in which they attempt to coordinate theories of human behavior.⁶ From 1937 until 1952 when her last statement on real self was published, it was clear that Dr. Horney's mind was open to change and that "real self" as a dynamic concept was coming more and more to occupy a position of central importance in the understanding of human character, personality and behavior.

Freudian theory holds that behavioral characteristics, character formation, and symptom formation result from the ways in which conflict occurs between biological instincts having need for expression and the defenses arising within and without the individual to prevent such expression. Adequate adjustment of the individual to the world took place when the defenses were of such a kind and intensity that inner Id impulses were transmitted into socially compatible action. As Erich Fromm noted, "if man fails to solve his Oedipus complex . . . if man does not overcome his infantile strivings and develop a mature genital orientation, he is torn between the desires of the child within himself, and the claims which he makes as a grown up person. The neurotic symptom represents a compromise between infantile and grown-up needs while the psychosis is that form of pathology in which infantile desires and phantasies have flooded the grown-up ego, and thus there is no more compromise between the two worlds." In the creation of civilization, man is forced to forego the immediate and complete satisfaction of his instincts; frustrated sexual or libidinal instinct is turned into non-sexual, mental and psychic energy via the processes of sublimation, reaction formation and repression and so forth. The best possible solution that could ever be obtained, according to such constructs, was an equilibrium between inner irrationality ever ready to thrust outward for expression; and

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borrowed, incorporated outward controls represented in the ego and super-ego.

Ego, as thus theorized was the structure of perceptions and mental functions which, receiving stimuli from the environment and all levels of body function, modified the inner instinctual drive patterns into some kind of harmonious mold for the individual. The ego was a secondary agency, dependent for its strength on the Id, and at best only weakly integrative in the face of its origin. Menninger stated: "The genesis of the ego has been a subject of much speculation and research; opinions are divided as to whether the ego is a product of differentiation of instincts, and epiphenomenon of drive-dynamics, or whether it was always there, at least in embryonic form, with its own potential structure, its autonomy, and its primal reality . . . In other words, psychoanalytic theory ascribes to the ego a role of organizer in the process of growth and at the same time views it as an appendage to a special group of instinctual functions over which it acquires a certain modifying or controlling dominance."⁷ This statement reflects the shifting emphasis from libidinal psychology to ego psychology. A whole constellation of concepts had been elaborated into a comprehensive theory over a period of 75 years, with the major emphasis on masculine sexuality as the driving power in man's (and women's) nature. Freud's theories struck the thinking world with an overwhelming impact, most probably because he emphasized such concepts as the unconscious, psychic reality, defense mechanisms, inner conflict and anxiety, as well as discovered the important role of infantile experiences in personality development.

The seminal impact of growing sociological and anthropological knowledge undermined some of the basic formulations of the original analytical theoretical structure and allowed for a broadening of concepts. Horney was able to bring to psychoanalysis a rich background of Freudian theory as well as an awareness of the need for changes necessitated by such increasing knowledge. In 1939, when she had already acquired an extensive experience in Freudian theory and therapy, she was forced, through her discoveries to question many of the tenets of libido theory. It is beyond the scope of this paper to report in detail these contributions. They are explicitly described in her book *New Ways in Psychoanalysis*.² Some

basic Freudian concepts are an integral foundation upon which her theory rests. These concepts include the unconscious, psychic determinism, defense mechanisms, inner conflict, and anxiety. In brief, she believed:

1. That it was the *entirety* of infantile experiences rather than disturbances in psychosexual development that combined to form the character structure, and it was this structure from which later difficulties arose;

2. That disturbances in human relationships were the crucial factor in the genesis of neurosis preceding ego-id conflicts;

3. That the striving for safety becomes paramount; and manifest anxiety occurs when specific safety devices fail in their function;

4. And that the warping of the spontaneous individual self is a factor in the genesis and perpetuation of neurosis. Ego as defined in libido theory was, according to Dr. Horney, already a part of the neurotic process, and quite different from what she meant by the spontaneous individual self.

At this point, as she reexamined libido theory, it was true that the entity of "self" as a dominant factor in personality development had not yet been clearly formulated. In this early stage of transition, Horney's argument that neurosis was due to culturally determined difficulties experienced in an accentuated form, seemed to overstate the case by the implicit minimization of intrapsychic forces. The title of her first book *The Neurotic Personality of Our Times* emphasized the role of cultural factors. Her attention then was focused upon the importance of environment, and she attempted to accord this neglected facet a more significant role in neurotic development. She saw neurosis as growing in the soil of two categories of external influences. The first was the existence of omnipresent cultural conflicts such as competition versus humility; irresponsible cultural stimulation of desires and needs versus factual frustrations ensuing in the quest of such satisfaction; and the cultural myth of freedom versus obvious factual human limitations. The second set of these influences was the personal, familial conflicts.

Out of the groping attempts to cope with such conflicts came the functions which had been attributed to the ego. For Horney, ego was already an expression of a disturbance in healthy growth.

In 1939, as she explored the concept of "narcissism", some of the dimensions of "real self" began to emerge, but these were as yet more implied than discreetly identified. The concept was in the process of emerging.

In his new Introductory Lectures on Psychoanalysis, Freud had stated, "In certain rare cases, one observes that the Ego takes itself as an object, and behaves as if it were in love with itself. For this reason, we have borrowed the name of narcissism from the Greek legend."⁸ Jones reported that Freud succinctly defined narcissism as "the libidinal complement to the egotism of the self preservative instinct."⁹ But what "self" was the ego in love with? Horney recognized elements of overevaluation of self and self inflation, and thus defined narcissism as a process in which the person admires himself for attributes he does not, in fact, possess. A human being who loves himself for what he in actuality is, experiences genuine self esteem, not narcissism. For Horney, the evolution of a narcissistic facet to self aggrandizement followed this pattern:

1. There were basic disturbances in relationship to others which lead to grievances and fears and then emotional conflict.

2. Then these basic distortions in human relations produced disturbances in feelings for one self, in severe cases leading to a complete repression of the spontaneous individual self. By this, Horney meant that the person's own will, own wishes, own feelings, own dislikes, and own capacity to be himself became paralyzed.

3. That self-inflation was one way to cope with such conditions, to escape from the painful feelings of nothingness. "Real me" is displaced by one's erroneous ideas about oneself! This move from real self was a unifying measure to forestall the desolate experience of feeling completely crushed.

4. Thus narcissism (or self inflation) is not love of one's self, but an idealization of a *needed* self. A person must cling to illusions to replace that part of himself he feels he has lost. As she defined the interrelationships between different selves, Horney acknowledged her debt to William James for his concept of "real me", a self having qualities of individuality, spontaneity, and genuineness; and to Jung for the concept of "persona" which described those aspects of self adopted as facades for social interacting.

With the publication of *Our Inner Conflicts*

in 1945, the pattern of neurotic growth was further clarified. Normally, in the process of living, the child could spontaneously and securely relate to others by moving towards them in affection, sharing, and mutuality; move away from others in self satisfying curiosity or meditation, and move against others in assertiveness and self defense when necessary. When faced with an environment that constricted the growth of the real self, the child experienced anxiety of greater or lesser degree. The anxiety-colored perception limited the ability to evaluate reality, and hindered the capacity to react fully and appropriately. This led to qualities of rigidity, compulsivity and desperation in human relationships. Instead of feeling free to move towards, away or against others, the child seized upon each type of move with feelings of stringent necessity. Driven by anxiety such moves in relationship to others changed insidiously. Now, the move toward others became an appeasing clinging with a need to be protected; the move against others was invested with needs for domination and mastery, and the move away from others was to avoid any emotional involvements. Regardless of the predominance of any one move, the other two also coexisted unconsciously. Horney believed that the central process in neurotic development focussed upon the patternings of inner conflict which were set up among such mutually incompatible driven trends. "They (the conflicts) operated between contradictory sets of neurotic trends, and though they originally concerned contradictory attitudes toward others, in time they encompassed contradictory attitudes toward the self, contradictory qualities, and contradictory values."¹⁰

As means to stifle anxiety and regain equilibrium and homeostasis, the person availed himself of many defense mechanisms, some of which are the familiar processes of projection, introjection, denial, regression, repression, sublimation and reaction formation. In their original meanings these described relationships of ego, id, and super-ego. What Horney did was to redefine the nature of the conflicts and then to gradually sketch in the nature of the processes which took place as real self was threatened. She saw that four general types of reactions could take place.

1. A conflict could be denied by the repressing one side of the struggle. Thus a facade of "goodness" might be maintained intact while all traces of hostility would be buried, a frequently found

precursor of depression.

2. Conflicts could be avoided by withdrawing from any chance of encountering opposing wills or forces. This is an important antecedent of the schizoid character trait.

3. Conflicts could be externalized, i.e., be experienced as if they were taking place outside self. The mechanism of projection is that variant of this process in which others are blamed and held responsible for one's predicaments. But "externalization" is a far more comprehensive term, including *all* attitudes and feelings. I.e., a man kicks the chair for causing him to stumble into it; or anger at others is shifted to wife, child and pet, instead of oneself; or the familiar undefined "they" who have it in for us or who expect us to be perfect.

4. The fourth reaction to protect one's unity was to get rid of the real self and attempt to replace it with a more desirable substitute. Here the use of fantasy and imagination led to the comprehensive self rewriting embodied in the idealized image. This move toward self glory was a desperate measure to achieve freedom from anxiety. Whatever the intent, it became clear that every step toward such self glorification entailed greater conflict, constantly reinforcing the neurotic process of development.

With each step, the individual moved further and further from his real self. Self-determination, self-confidence and realistic pride were diminished. The solid assurance of substantiality was missing. Inflated feelings of significance, power, and omnipotence became more and more necessary. As realistic self-esteem falls, unrealistic pride forges into the foreground. As the feeling for one's actual self contracts, the need to inflate one's illusionary self increases.

In 1950, with the publication of *Neurosis and Human Growth*, the central role of the "real self" was lucidly presented. Real self was neither an anthropomorphic idea, nor an anatomical structure; it was the "central inner force common to all human beings and yet unique in each". It was the "original force toward growth and development, the spring of emotional forces, constructive energies, of directive and judiciary powers; the force leading to realization of our potentialities, self-realization. It was the most alive center of self, which made possible clarity and depth of feelings, thoughts, wishes, and interests; gave the individual ability to tap his own resources, the strength of his will power, the special capacities or gifts he

may have."¹² In the words of William James, it "provides the palpitating inner life." A. H. Maslow in his book, *Toward a Psychology of Being*,¹³ identified this core of personality as follows: Every individual has an essential inner nature composed of needs, capacities, anatomical equipment, physiological or temperamental balances, prenatal and natal experiences. This inner force shows itself as natural inclinations and propensities. These potentialities are actualized, shaped or stifled by extra-psychoic determinants. Healthy growth is the accepting and realizing of this inner self. With Horney's construct, neurosis was defined as a process of evolving in ways antithetical to the potentialities of the real self. The alienating process with all its effects on personality and character is the consequence of attempting to actualize a fantasy-bred creation, the idealized image. The central inner conflict in neurosis was that conflict between the discrepant patterns of the idealized image and the real self. Therapy represents an organized effort to identify and undermine all the facets of the destructive idealization of self and concomitantly to identify and nurture all aspects of the real self. Therapy is a program to move toward self realization.

Putting real self and the alienating process in a central position in human personality development allowed for a new ordering of well known observations and manifestations. A person whose life style, whose orbit revolved predominantly around real self developed morals, ethics and values, attitudes, feelings, inhibitions, and sensitivities towards others, self and the world that were consistent with his capacities. They were realizable, (capable of being realized) and flexibly adaptable to changing conditions. However in the human process of accommodation to basic anxiety, actualization of a protective, yet basically disruptive fantasy of "not-self" occurred. The contradictory demands of society, the breaching impact of compulsively driven basic trends toward, against and away from others, the homeostatic defenses against anxiety intermixed to produce an inevitably greater separation from real self.

The phenomenon of self hate has been explained from a different theoretical viewpoint as sadism, masochism, hostile destructiveness and revenge. According to Horney, self hate was directed against the real self by the internal forces driving for self idealization. This is truly man against himself with implacable deadliness. Driven so

far from his life's center to desperately need the unrealizable, he turns against himself and others for the failure of his fantasy. According to the libido theory, masochism was an expression of the death instinct; and sadism the externalized expression of this force. Their admixture with the instinct Eros fused in varying proportions gave to it the sexual coloration of earlier descriptions. Using the concept of real self, these phenomena can be understood in their pervasive compelling intensity. Both phenomena were unconsciously intended to hurt; in sadism, it was some other person, in masochism, it was one's self. In both, desperation and hopelessness were intense motivating factors. Both represented ways to achieve some form of unity and aliveness. In the instance of sadism, (or sadistic tendencies), vindictive triumph over others is vitally important to foster the beliefs of omnipotence, inviolability, invulnerability, immunity and a need for impunity for whatever one does! But why the overriding drivenness of these tendencies? Early in life, with the forces of the real self overwhelmed, integrating esteem could come from fantasied godlikeness and revenge. When the trends of moving against people were predominant in character development, to this extent would the sadistic tendencies gain expression. However, when the interchange between the child and his human environment permitted or demanded a complaint, self-effacing orientation, the expression of helpless, hopeless despair would take the form of self minimization. The phenomenon of sacrificing a part for the continued existence of the whole is a familiar technique in biological and social organisms. The masochist uses suffering and pain as part of an unconscious bargain to perpetuate his kind of illusional, pretended world. In either instance, the underlying goal is maintenance of some semblance of unity and inner integration.

The therapeutic goal is focussed upon the possibilities of re-establishing contact with the core qualities of the real self, the potential of inner aliveness from which the patient has become estranged. In the presence of marked sadomasochism (or in Horney's terms arrogant vindictiveness and morbid dependency), this task is formidable on several counts. For one, there is a deep disbelief in the existence of one's own constructive assets. Secondly, however much it is that living is constricted by this character armor, this armor has held the individual together. And third, these

ways of being provide the experience of intense satisfaction, regardless of the fact that they stem from self-destructive motivations.

The concept of real self is not a unique discovery by Horney. She however has used it to redefine some of the major problems of human personality and behavior, and extended theory aimed at more effective therapy. The newer emphasis on ego function which is expressed in the following quotation from Beata Rank indicates the moves toward integration of theory that are occurring.

"Current psychoanalytic theory states that the ego develops through the medium of identification with parental attitudes, and that gradually the early satisfactory relationships with significant figures in the child's environment leads over to the formation of object relationships and the capacity for reality, recognition, and adaptation. For the process of individuation or ego identity to take place, it is necessary for the child from the earliest months of life to have a parent, or parent figure who is sensitive to his needs and able to give him at least a minimal amount of consistent affection and support, thus contributing to his feeling of confidence in himself and in the world around him . . . only through the affectionate and flexible parent-child relationship is the child able to develop a central core of self or ego-identity."¹⁴ Here ego-identity is used synonymously with real self.

Ernest Schachtel, in the introduction of his book, *Metamorphosis*, emphasizes these points. A child does not feel coerced to develop his senses but enjoys and exercises a growing capacity to perceive reality; this enjoyment and growing capacity holds for all human capacities, the total process being one of *self* actualization. The tragic and frustrating aspects of life and reality stem from the crippling and stymying of the development and realization of human potentialities. Certain object aspects of society make man's social reality crippling for his potentialities. "These stifling and inhibiting forces enter the child's life at first indirectly through their effects on the mother's personality, later through many other channels."¹⁵

"The basic conflict, or emerging from embeddedness, of turning potentiality into actuality, of self-actualization may or may not be obvious in the way in which a person fits in with a given, limited environment or situation . . . the significance of the environment's role in the develop-

mental conflict is not confined to frustration of instinctive drives; it extends, more importantly, to its encouraging and discouraging influence on the development of the child's potentialities."¹⁶

This is a macroscopic characterization of the "potentially hostile world" which Karen Horney described in her definition of basic anxiety. The newer studies in communication, phonetics, kinesic and linguistic analysis, as well as perception studies illustrate the insidiously subtle ways in which the "potentially hostile world" may express itself in moment to moment transactions. Rene Spitz, in his work on infants, obtained motion pictures showing an unwed mother attempting to breast feed her newborn. The act of nourishing was carried out in such a way as to make feeding impossible. The relationship of mouth to nipple made sucking anatomically difficult. The awkward roughness of her cradling arms denied the needed climate of warmth and security. The nurturing message was obscured by the emotional, muscular, skeletal transmission of anxiety and danger.

I would submit that: 1. The fate of the real self is intimately related to what we call mental illness, regardless of the symptomatic manifestations. 2. The outcome of the struggle for self-realization can have an enormous variety of patterns involving autonomic, skeletal, and psychological functions. 3. The individual must compromise his own real qualities in circumstances where these are not permitted expression, both for outer and later, more importantly, for inner exigencies. Illness would thus be the degree and extent to which an individual is not, cannot allow himself to be,

and must avoid being, his real self.

Primitive, ego alien anti-social instincts can neither be used meaningfully to explain constructive changes in the individual, nor the growth and maturation of civilizations. According culture its determining role in the development of man's human characteristics, the Horney concept of real self not only gives a deeper understanding of people, but offers a realistically optimistic philosophy of therapy.

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GLOMERULO-NEPHRITIS

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First Admission

This 25-year-old white male was first admitted to this hospital on 11-25-1960, on the Surgery Service for observation of abdominal pain. He gave a long standing history of epigastric burning and discomfort following meals that was relieved by food and antacids. Two weeks prior to his admission he began having sub-xiphoid pain accompanied by nausea and vomiting. Two days prior to admission he had constant severe abdominal pain.

Physical examination at this time revealed a B.P. of 130/80, P. 90 and regular and he was afebrile. The examination was not remarkable except for the abdomen, which was flat, tense and there was involuntary rectus spasm. The bowel sounds were hypoactive and the rebound phenomenon was not present.

Laboratory Data—Urinalysis: sp. gr. 1.010; pH 5.0; protein 4+, sugar negative; there were occasional finely granular casts. The hgb. was 11.5 gm.; WBC 12.7 with a normal differential. BUN 63; Na+ 137; K+ 6.9 CO₂ 26; Cl 103; TSP 5.4; A:G ratio 4.2:1.2.

Surgical exploration was contemplated but the patient improved quickly on conservative therapy and was discharged to his home.

Second Admission

His second admission was on 11-11-61, with complaints of shortness of breath and edema. Three months prior to admission he noted swelling of his legs with gradual progression until 2 weeks before admission when he began having severe orthopnea and paroxysmal nocturnal dyspnea. The night of admission he began coughing pink frothy sputum. His past history revealed no evidence of heart disease, rheumatic fever, hypertension, or pulmonary disease. There was some question of family history of hypertension. He was hospitalized at the Arkansas Childrens Hospital at age 16 years for osteomyelitis of the right forearm; the records at that institution revealed no physical or laboratory evidence of note except 2+ albuminuria. He was examined for military service 7 years previously but turned down because of "bad blood." He was subsequently given IM injections by the county.

*Clinico-Pathological Conference from the Departments of Medicine, Radiology, and Pathology, University of Arkansas Medical Center, Little Rock, Ark.

Physical examination revealed: B.P. 184/130; P. 96; T. 100.6°. He appeared chronically ill and pale. There were matted, small, nontender nodes palpable in the groin and axilla. Examination of the eyes revealed arterial venous nicking and occasional hemorrhages and exudates. The teeth were small with large gaps between them. The neck veins were distended and filled in a retrograde manner. The lungs were clear, but the heart was enlarged and a soft, basal, systolic murmur was heard. The 2nd pulmonic sound was loud. The remainder of the examination was unremarkable.

Laboratory data: Hbg. 6.0 gms; Hmt. 19%; WBC 10,000 with a normal differential. The RBC's were described as hypochromic. UA: sp. gr. 1.018; 3+ protein. The VDRL was positive but the RCF was negative. CO₂ 14; Cl 113; BUN 135; Na+ 136; K+ 7.0; Ca++ 7.3; P. 910; TSP 5.0 gm. A:G 3.3:1.7 cholesterol 162. Creatinine clearance was 11 cc/min. A chest film revealed cardiomegaly with congestive changes. An upper GI series revealed a deformed duodenal bulb.

The patient was treated with blood transfusions, diuretics, digitalis, and was discharged after seven days of hospitalization.

Third Admission

He was admitted again on 12-1-61 in the Emergency Room because of nausea, vomiting, anorexia, and epistaxis. Examination revealed no marked changes from the previous findings except for his nose bleeding. The blood pressure was 160/100. The lab data revealed Hbg. 9.3; K+ 7.4; Cl 66; Na+ 125; CO₂ 14; BUN 300. He was given insulin, dextrose and calcium gluconate. His nose was packed and he was discharged in 2 days.

Fourth and Final Admission

He was admitted for his final admission on 12-6-61 because of nausea, vomiting, epistaxis, moderate hematemesis, and coma. The blood pressure was 110/50, the pulse 100. He was dehydrated, unresponsive, and bleeding from the nose. The EKG showed marked amplitude of T waves, with a first degree A-V block and prolonged QRS duration. He responded poorly to treatment and expired a few hours after admission.

Dr. Ackerman

I think that we might begin our attempt to anal-

alyze this patient's history and findings by reviewing the x-rays that were obtained during his hospitalizations.

Dr. Barnhard

Films of the abdomen made during November

1960 demonstrate a couple of vaguely possible masses which don't seem to relate specifically to anything in the patient's protocol. The first is seen as a diffuse haze in the upper abdomen which appears to be associated with depression of the



FIGURE I
CPC
February 4, 1965 Barnhard

transverse colon. This finding may be due to varying degrees of filling of the stomach but it does seem somewhat constant amongst several films. The other is a similar type finding of a mass over the bladder which indeed looks not unlike uterus

might in the female. Here again, however, it is rather vague and might be due to sigmoid flexure. And so in effect, both "masses" may be "red herrings".

The upper GI series was done during Novem-



FIGURE II
CPC
February 4, 1965 Barnhard

ber 1961. The duodenal bulb is markedly deformed though there is no evidence of crater. This finding correlates well with his long history of epigastric discomfort relieved by food and alkali. Please be aware that when I state that there is no evidence of active ulcer in a bulb such as this, it

doesn't mean that one is not present. Particularly on a single examination it is impossible to determine which of the many crevices of a deformed bulb may or may not be an ulcer.

This film is one of two chests made during November 1960. Note that the heart is within normal

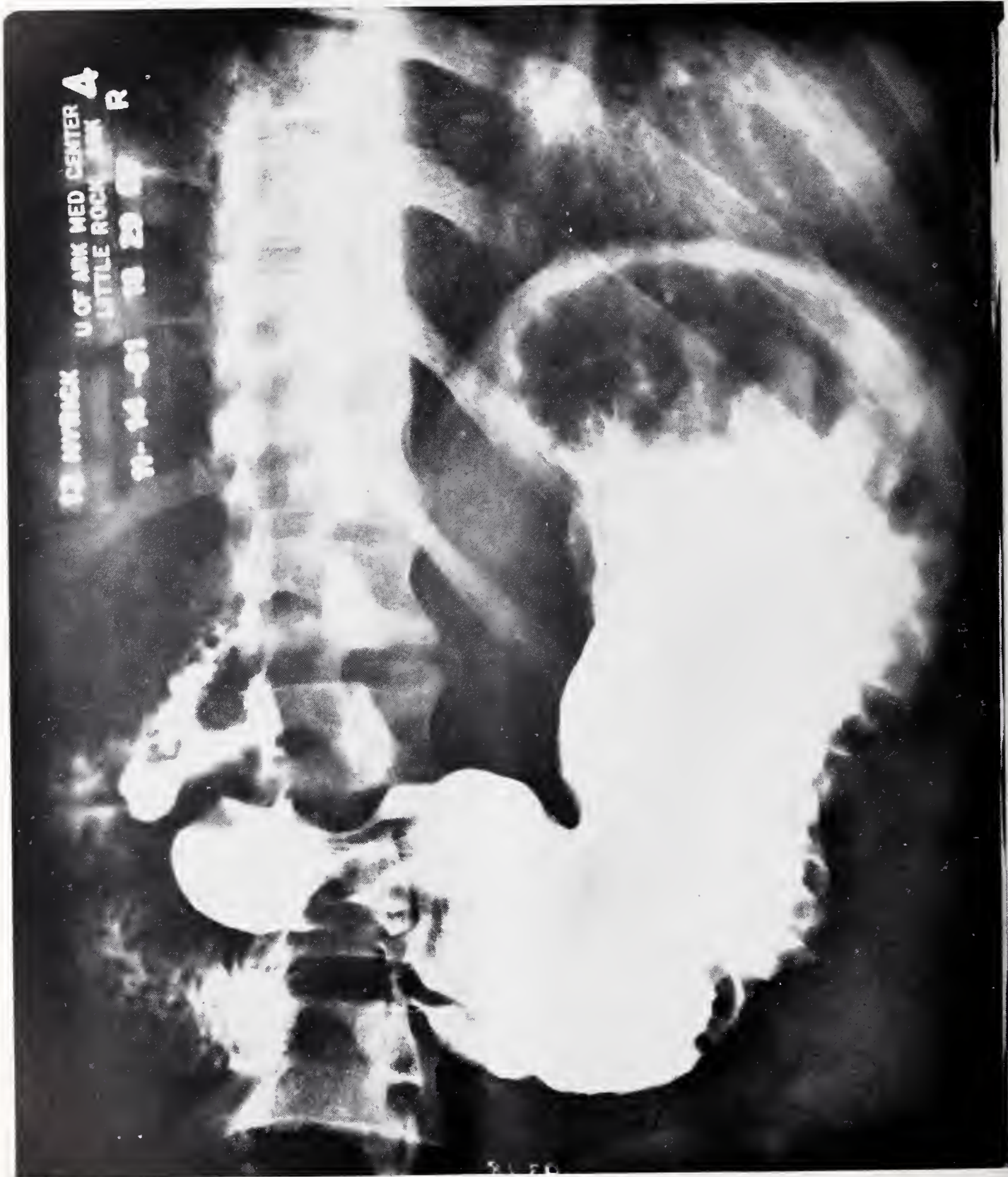


FIGURE III
CPC
February 4, 1965 Barnhard

limits in size and the lung fields are clear. One year later the heart has decidedly increased in size and the lung fields show a diffuse, patchy increase in density a bit more pronounced in the lower lung fields. The distribution is not particularly

perihilar such as would be characteristic of the edema pattern of azotemia; certainly with the kidneys in poor condition the cardiopulmonary system may be responding in such a way as to produce this picture. However, two further possibili-

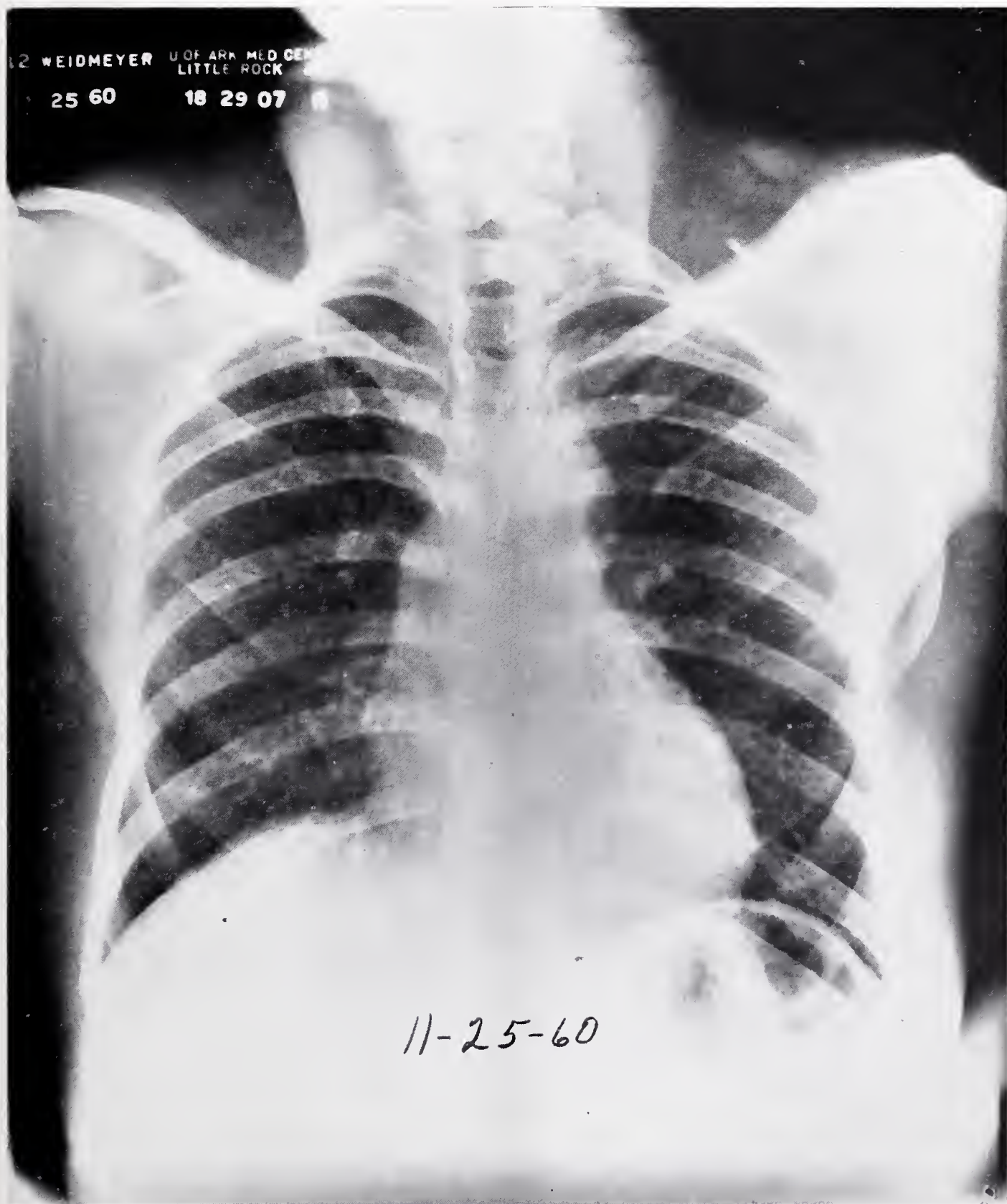


FIGURE IV
CPC
February 4, 1965 Barnhard

ties are worth mentioning, Goodpasture's Syndrome and the collagen vascular group. Goodpasture's Syndrome is intra-alveolar hemorrhage with glomerulonephritis though I believe some authors have broadened it to include other problems of

the kidneys. At any rate it is a combination of a pulmonary and renal involvement. I don't like Goodpasture's Syndrome as the diagnosis in this case since it usually does not have cardiac enlargement and the lung findings should look more like



FIGURE V
CPC
February 4, 1965 Barnhard

idiopathic pulmonary hemosiderosis which has a speckled, rather than mottled appearance, that this patient has. A better possibility is multi-system involvement such as one sees in the collagen vascular group. In particular I'll mention polyarteritis nodosa and leave it at that.

Dr. Ackerman

Can you comment on the size of the kidneys?

Dr. Barnhard

I avoided "guestimating" kidney size because they are too obscured by overlying intestinal contents.

Dr. Ackerman

In arriving at a diagnosis in this patient, I think that we can begin by trying to establish the point that this patient did indeed have chronic renal disease rather than an acute process that began in the fall of 1961 and led to his death in a matter of weeks. I base this on the fact that azotemia and proteinuria were present a year earlier when he came into the hospital with abdominal complaints in November of 1960. I believe that these findings indicate chronic renal disease, but there are two alternative explanations for the abnormal urinalysis and azotemia which were present at that time. Could the patient have had acute glomerulonephritis at that time? The findings of acute glomerulonephritis may be atypical in the adult and occasionally abdominal pain may be the presenting complaint. The absence of hematuria, edema, or hypertension makes acute glomerulonephritis highly unlikely and I do not believe this diagnosis need be seriously considered. Secondly, could an acute illness coupled with dehydration account for the observed proteinuria and azotemia? Transient proteinuria may be seen with febrile illnesses and with congestive heart failure. Neither fever nor heart failure were present. In young persons with normal renal function severe dehydration is tolerated without azotemia so that I would discard these two alternative possibilities and conclude that the patient did have chronic renal disease.

The history obtained on the first hospitalization is typical of peptic ulcer. The more severe pain and vomiting that lead to his admission to the hospital I cannot explain very easily. Perforation or penetration of the ulcer into the pancreas come to mind but these seem unlikely in view of the subsequent hospital course.

During this first hospitalization investigation of the renal status would have been beneficial in

his subsequent management. Urine culture, a search for obstructive uropathy, a quantitative measurement of the urine protein, and an IVP would be helpful in accurately diagnosing the kidney disease that was present. Contrary to what we were taught in the past, pyelography may be successful in visualizing the renal pelvis and ureters in patients with this degree of azotemia especially if a double dose of dye is used.

At the time of the second admission this man presented with dyspnea on exertion, edema, bouts of paroxysmal nocturnal dyspnea, and finally frank pulmonary edema—all manifestations of congestive heart failure. He was hypertensive, with evidence of accelerated hypertension reflected in the fundi. Pallor and cardiomegaly were the other notable features of physical examination. Laboratory investigation confirmed the presence of anemia and showed azotemia and metabolic acidosis.

At this time another bit of history of great importance was obtained, namely the presence of proteinuria when he was hospitalized at age 16. Although the patient had an infectious disease then and may have been febrile initially in his course, I am going to assume that he had persistent proteinuria and that it was not a transient finding due to fever.

At the time of the third and fourth admissions to the hospital he was severely uremic and manifested symptoms that are commonly seen in advanced uremia—nausea, vomiting and epistaxis. Although hypertension may have played a role in the patient's nose bleed, uremia with its attendant bleeding tendency was probably a more important etiologic factor. In some patients with uremia thrombocytopenia is present, in others no cause for abnormal bleeding can be identified.

Finally he came into the hospital and died after having advanced electrocardiographic signs of hyperkalemia—first degree A.V. block, widened QRS complexes, and tall, peaked T waves.

We have sound evidence of renal disease a year before death and presumptive evidence for kidney disease nine years before death. It is my task to decide what type of renal disease the patient had.

Could this patient have had some type of congenital anomaly of the kidney, such as hypoplasia or polycystic kidney disease, or could he have had an anomaly of the lower urinary tract producing obstruction. Nothing in the patient's history or examination supports any of these possibilities

and I am not going to consider them further. Neither is there evidence to suggest an acquired obstructive lesion such as a urethral stricture or prostatic hypertrophy.

The so-called metabolic diseases of the kidney may be considered briefly. Gouty nephropathy, diabetic nephropathy and renal damage due to hypercalcemia may be easily eliminated from our differential diagnosis. Amyloidosis may produce renal insufficiency but because the protocol implies that this patient's osteomyelitis was relatively benign and short-lived and because he never had large amounts of protein in the urine I am going to strike that from my diagnostic possibilities.

Might the terminal renal failure be due to vascular disease with kidney damage secondary to severe hypertension? This is quite unlikely in view of azotemia and proteinuria at a time when the blood pressure was normal. Had this patient been seen only on his later admissions it would have been very difficult to say whether renal disease produced hypertension or vice versa. The most helpful point in making this decision is being able to determine whether or not proteinuria was present in the years before hypertension appeared. In this patient we have such information so I believe we can say with confidence that this was not simply malignant or accelerated hypertension.

This patient had a syndrome characterized by long-standing proteinuria, progressive azotemia, hypertension, and death due to uremia. This syndrome is termed chronic glomerulonephritis and I think this is what the patient had.

It is well known that a certain percentage of patients with acute glomerulonephritis fail to heal their renal lesion and have persistent proteinuria and ultimately die of uremia. This sequence is seen in some 5 to 10% of children with acute glomerulonephritis and in 30 to 40% of adults. In this patient we have no history suggestive of acute glomerulonephritis. Does this mean that our diagnosis of chronic glomerulonephritis must be discarded? The answer is, no it does not. Studies of groups of patients with a disease such as the one under discussion today have shown that in only a minority of patients is a history of acute glomerulonephritis obtained. The failure to identify an episode of acute glomerulonephritis does not necessarily mean that we are dealing with a separate disease process.

Evidence obtained from a study of streptococcal epidemics bears on this question. Stetson and

Rammelkamp and their associates followed a group of 184 patients infected with Type 12 streptococcus in an outbreak of pharyngitis at a Naval Training Base.¹ Type 12 is the strain of streptococcus that most commonly leads to glomerulonephritis. Following recognition of pharyngitis these patients were examined each day, their blood pressure measured, and a urinalysis performed.

Slightly over 10% developed proteinuria, hematuria, and granular casts in the urinary sediment. The investigators felt, correctly I believe, that these patients had acute glomerulonephritis. The interesting fact, though is that only about 30% of those patients who developed urinary abnormalities that we consider characteristic of acute nephritis, had any symptoms whatsoever and had not serial urinalysis been performed no abnormalities would have been discovered. In my opinion, this study establishes that acute glomerulonephritis may be an inapparent illness and may fail to produce symptoms that bring the patient to the doctor.

To recapitulate, a certain proportion of patients who have acute glomerulonephritis (and we have seen that this may be an inapparent illness) have persistent proteinuria. Over a period of years there is progressive destruction of glomeruli and after a period of 10 to 40 years hypertension and azotemia lead to death with the uremic syndrome.

This is not the course observed in all patients with proteinuria and progressive renal disease. Other patients seek medical aid because of edema. Such a patient is found to have massive proteinuria, the serum albumin is low and often times the cholesterol is elevated. This set of findings is of course termed the nephrotic syndrome. In adults with these findings there may be progression to azotemia and death in a relatively short time, a period of 2 or 3 years.

The difficulty in nomenclature and terminology in the field of renal disease led Ellis to simply use numerical labels to identify these two types of disease.² Acute nephritis preceded by streptococcal infection and accompanied by hypertension, micro-hematuria, and albuminuria he termed Type I nephritis and recognized that in some instances chronic renal disease followed this event. The disease characterized by the insidious onset of proteinuria, edema and other features of the nephrotic syndrome Ellis termed Type II nephritis. In addition to the clinic differences in the two groups he was able to delineate pathological

and histologic differences. The kidney of long standing Type I nephritis tends to be very small and the glomeruli are found to be scarred and hyalinized. In patients dying of Type II nephritis the kidney is not shrunken and instead of glomerular hyalinization diffuse thickening of the capillary membrane is seen.

Because of the confusion attached to certain terms used both by clinicians and pathologists in descriptions of renal disease misunderstandings may arise. For this reason I think the classification and simple terminology introduced by Ellis is helpful.

The patient under discussion today had long standing proteinuria. He did not have edema until terminally when heart failure appeared and his serum albumin was not decreased. I think that he had an unrecognized bout of acute glomerulonephritis in childhood and was one of the unfortunate minority who have persistent disease. Ultimately azotemia and hypertension appeared and death resulted from chronic glomerulonephritis. Dr. M. E. Richardson

At autopsy, the body was that of a well developed, moderately well nourished, white male, who appeared to be approximately 25 years old. I

might add that the abstract presented did not give the entire history of the patient. In reviewing his complete chart a positive serology was found when he was first seen with osteomyelitis at age 16. He also had a positive serology when he was examined and rejected for military service. He was treated at that time but subsequently was found to have a positive serology on a premarital examination and underwent another series of treatments.

The changes of the teeth (Figure 1) were suggestive of congenital syphilis. Hutchinson's teeth are incisors that are smaller than normal, with a "screwdriver" or peg-shaped deformity. The spirochetal infection during the stages of tooth development also results in defective formation of the enamel with resultant notching of the biting margins of the incisors. In this case, the teeth were somewhat small and separated with a slight suggestion of notching. The possibility that he may have had some dental repair cannot be ruled out. Anterior bowing of the tibiae was also described. A saddle deformity of the nose was not present. Destruction of the vomer and the sabre shins are both results of a generalized luetic osteochondritis and perichondritis that affects all bones of the skeletal system, particularly the nose and the lower legs. No other stigmata of syphilis was found on gross or microscopic examination. It is also of interest that 7 other siblings did not have any evidence of lues.

The heart was somewhat enlarged and weighed 490 grams. Unfortunately, the heart was kept intact for other studies and was not opened or examined microscopically.

The pleural cavities were free of fluid. The lungs weighed 900 grams and posteriorly they were edematous and nodular. On microscopic examination many alveolar spaces were filled with polymorphonuclear leukocytes, large amounts of edema fluid and fibrin (Figure 2). This probably represents an acute terminal bronchopneumonia. Elsewhere alveolar spaces were filled with red blood cells and hemosiderin-laden macrophages, so called "heart failure" cells (Figure 3). Their presence indicates some degree of congestive heart failure.

The liver and spleen were unremarkable grossly and microscopically. The pancreas showed the usual architectural pattern. Some of the ducts were filled with inspissated material which is frequently seen in patients dying in uremia.

The stomach and intestine were filled with



Figure 1

Small separated incisors with notching (arrow) is suggestive of Hutchison's teeth. Bridge of nose is not abnormal.

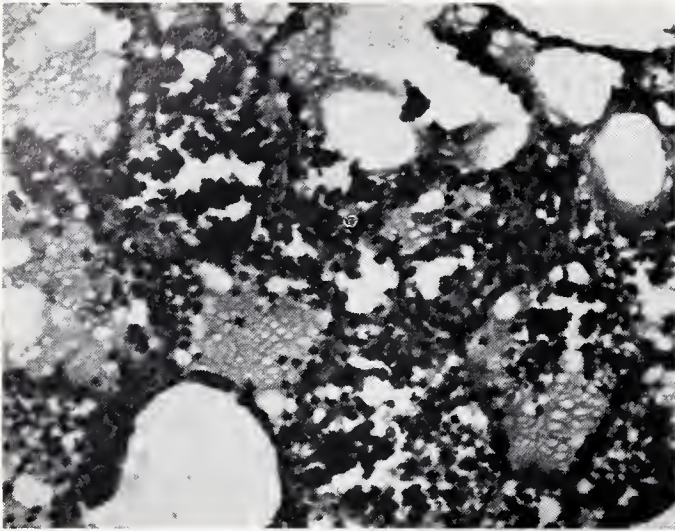


Figure 2

Lung with alveolar spaces filled with edema fluid, fibrin and polymorphonuclear leukocytes represents an acute terminal pneumonia. (H & E, Orig. Mag. x 50)

blood. The gastrointestinal tract had a hemorrhagic mucosa throughout its entire length but a definite bleeding site was not identified. A chronic duodenal ulcer was present but there was not any gross evidence of recent activity. A hemorrhagic diathesis is not uncommon in the patients dying in uremia. The colon is most frequently involved and sometimes the stomach. The lesions are non-specific and vary from edema and congestion to a necrotizing type of ulcerative colitis.

One of the most striking microscopic findings was the degree of adrenal atrophy (Figure 4), although some autolytic changes were also present. The zona glomerulosa was prominent; however, there was marked atrophy of the zona fasciculata and zona reticularis. There was atrophy of the lymph nodes (Figure 5). The testes were also atrophied and did not contain any mature sperm.

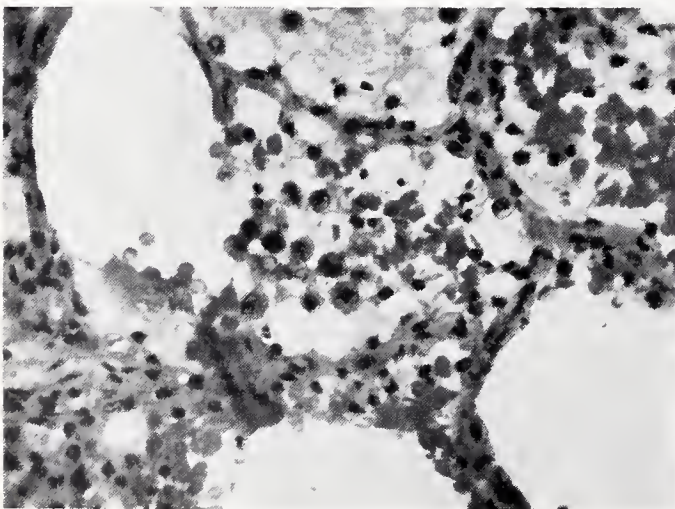


Figure 3

Lung with other alveolar spaces containing erythrocytes and hemosiderin laden macrophages. (H & E, Orig. Mag. x 167)



Figure 4

Adrenal atrophy with marked reduction of the width of the zona fasciculata (f) and zona reticularis (r). Zona glomerulosa (G) and medulla (M) are unaltered. (H & E, Orig. Mag. x 10)

These changes could be associated with decreased pituitary function.

The kidneys were symmetrically contracted, finely granular and each weighed approximately 50 grams. Their gross appearance was most compatible with chronic glomerulonephritis. However, both grossly and microscopically, it is difficult to determine whether the underlying disease process is infectious, vascular or primarily glomerular in the "end stage" kidney. Microscopically, there was little recognizable renal tissue (Figure 6). The majority of the renal parenchyma was replaced by fibrous tissue containing chronic inflammatory cells and residual dilated tu-

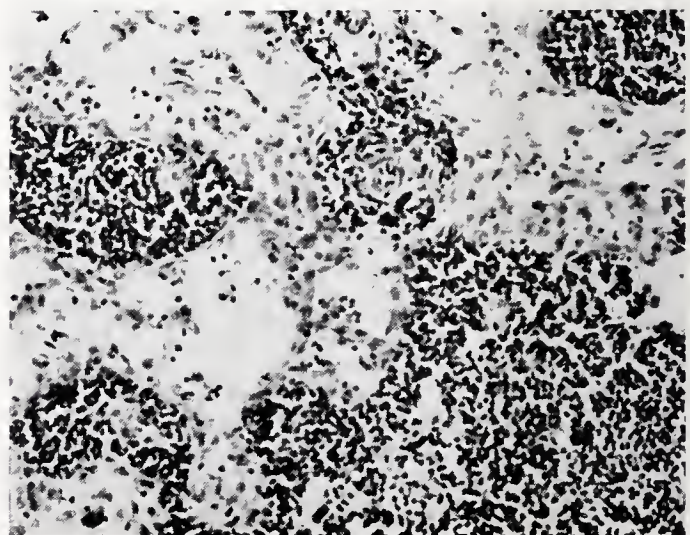


Figure 5

Lymph node atrophy. (H & E, Orig. Mag. x 104)

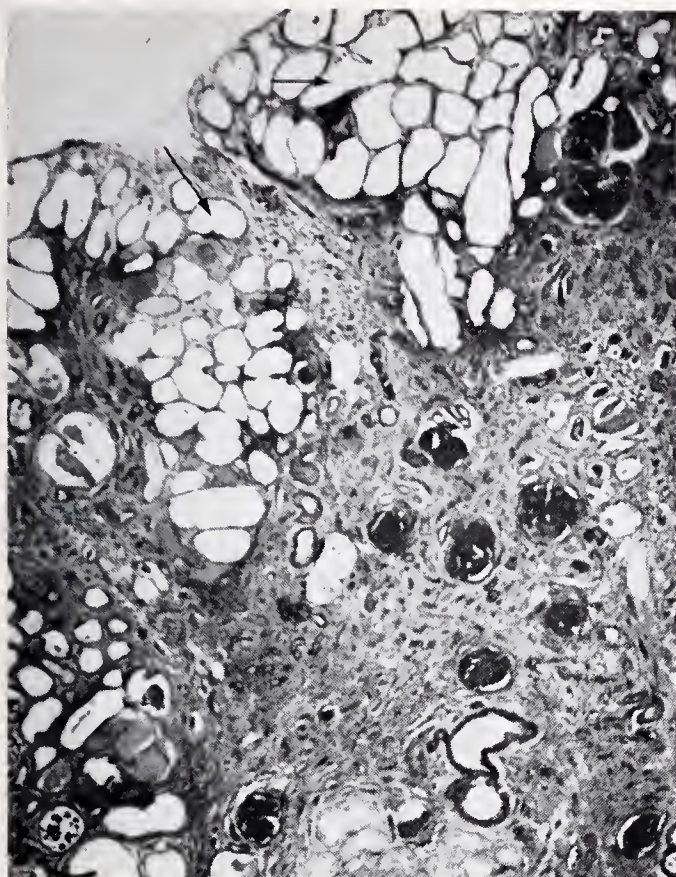


Figure 6
Atrophied (end-stage) kidney. Marked tubular dilation (arrows) with intervening fibrous tissue containing residual glomeruli and chronic inflammatory cells. (PAS, Orig. Mag. x 10)

bules. This degree of tubular dilatation is usually found only in chronic glomerulonephritis. The tubular dilatation with atrophy of the intervening parenchyma produced the fine granularity that was seen grossly. A few glomeruli were recognizable but the majority were replaced by a hyalinized material (Figure 7). In some areas however, there was only focal deposition of this material

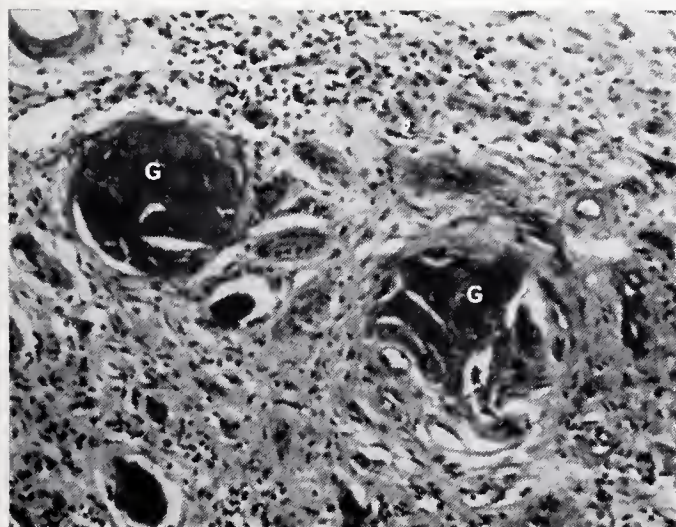


Figure 7
Replacement of glomerular capillaries (G) by PAS positive material. Fibrous tissue replacement of renal tubules. (PAS, Orig. Mag. x 50)

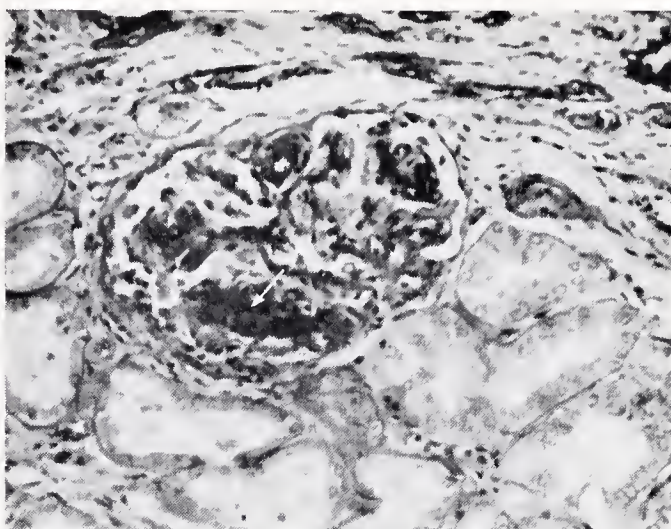


Figure 8
Residual intact glomerulus and tubules with focal deposition of an eosinophilic material (arrow) in glomerular tuft. (H & E, Orig. Mag. x 50)

(Figure 8). In the rare intact glomerulus there was a diffuse interstitial thickening (Figure 9). With routine hematoxylin and eosin-staining, the glomerular tuft appeared to be adherent to surrounding fibrous tissue. The periodic acid Schiff technique, however, demonstrated that this was not peri-glomerular fibrosis (Figure 10), but

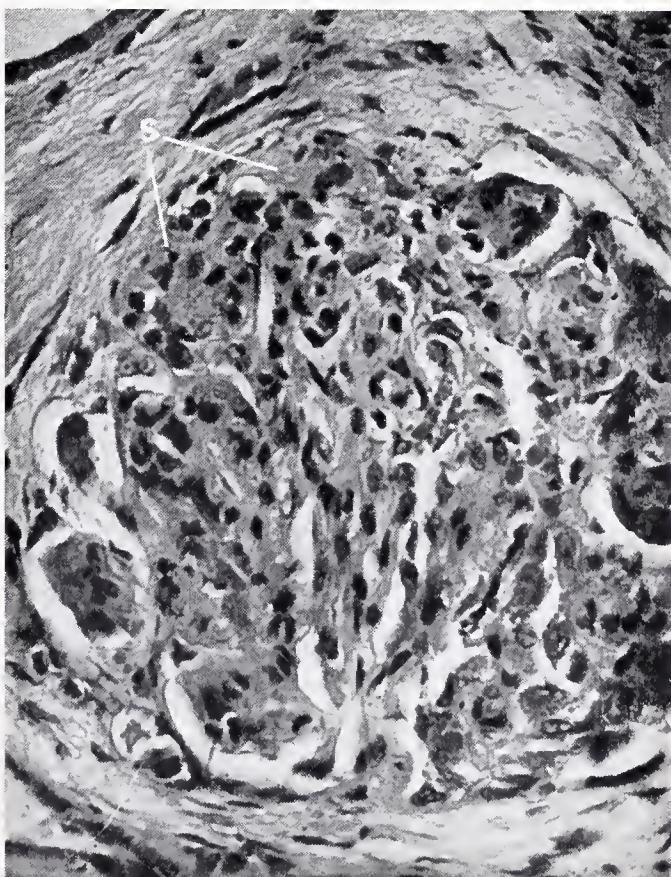


Figure 9
Another intact glomerulus. Note diffuse thickening of glomerular basement membranes and synchiae (S) between glomerular tuft and surrounding fibrous tissue. (H & E, Orig. Mag. x 167)

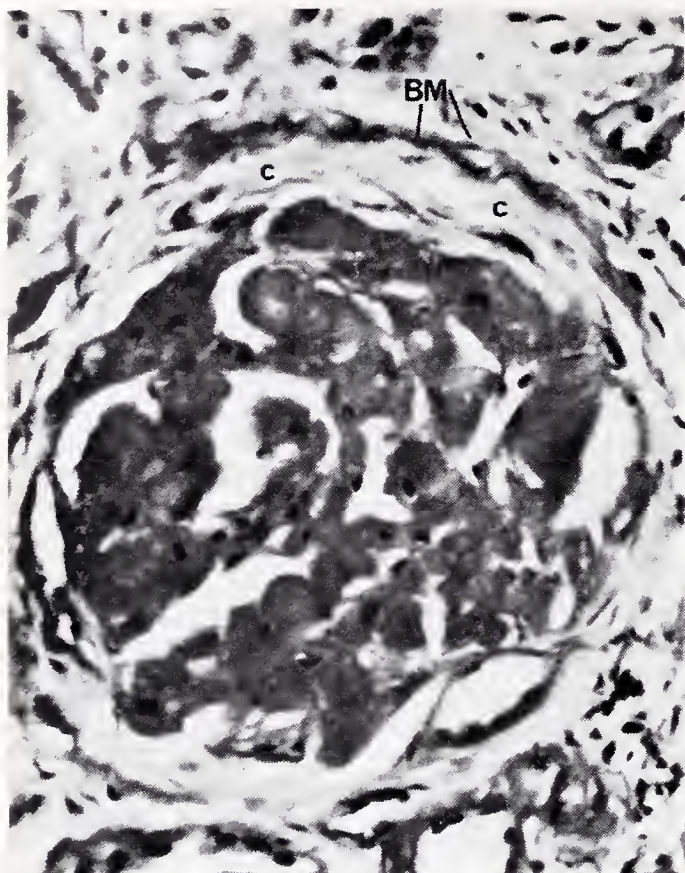


Figure 10

The PAS positive basement membrane (BM) of the parietal layer of Bowman's capsule indicates that the fibrous tissue surrounding the glomerular tuft is actually within Bowman's capsule and represents fibrous replacement of an epithelial crescent. This crescent (c) is diagnostic of chronic glomerulonephritis. (PAS, Orig. Mag. x 104)

an epithelial crescent that had undergone fibrosis. The basement membranes of the glomerulus, as well as the basement membranes of Bowman's capsule, gave a positive PAS reaction. The crescent is diagnostic of a chronic glomerulonephritis as Dr. Ackerman postulated. Only a relatively few patients with Ellis type I glomerulonephritis progress to a stage of sub-acute glomerulonephritis. In the sub-acute phase there is extensive proliferation of endothelial and epithelial cells. Those cells proliferating from Bowman's capsule form a characteristic crescent that is eventually replaced by fibrous tissue in the chronic phase.

Of interest is the deposition of a PAS positive material in the majority of the residual glomeruli (Figures 10 and 11). Could this be nodular glomerular sclerosis or intercapillary glomerulosclerosis described by Kimmelsteil and Wilson in some diabetics? Clinically, this patient did not have any evidence of diabetes. Microscopically, there was not any vascular disease within the kidneys or in other viscera. Generally, by the time a patient presents with renal symptoms due to Kimmelsteil-Wilson disease the diabetes is clinically apparent

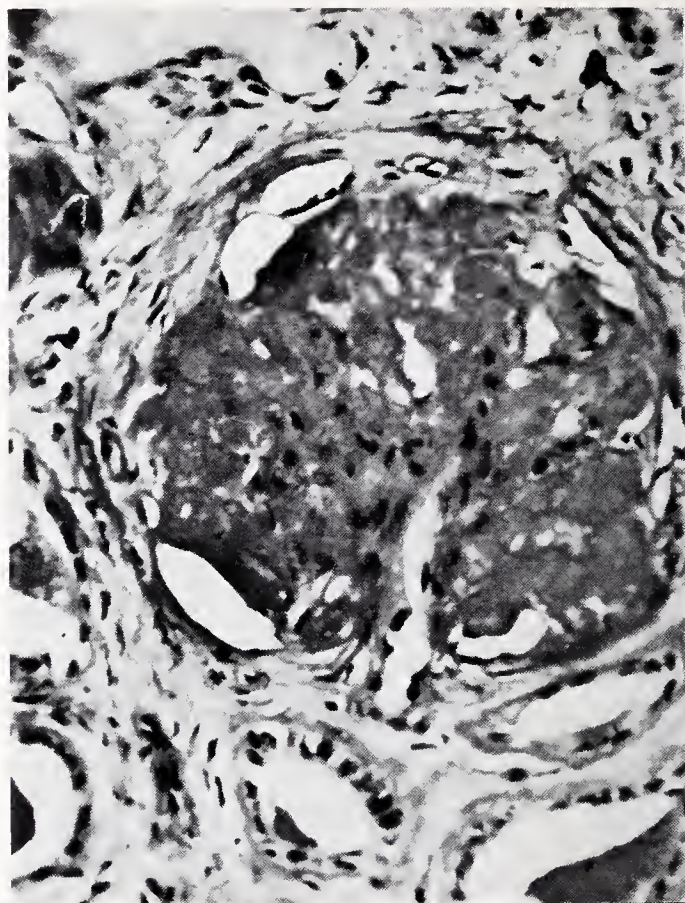


Figure 11

Diffuse deposition of PAS positive material in the majority of the residual glomeruli. (PAS, Orig. Mag. x 104)

and vascular lesions are present in the majority of organs. The lack of vascular pathology within the kidney and other organs also rules out a primary vascular disease.

Secondary amyloidosis of the kidney warrants consideration at this time. Amyloidosis in a 25-year-old man might seem unusual, however, Allen, (3) reports secondary human amyloidosis has been produced in three weeks. Also, in the older literature, one of the most common causes of secondary amyloidosis was syphilis and this patient probably had syphilis. Various metachromatic stains and Congo Red are customarily used to identify amyloid. Secondary amyloidosis of the kidney however, is noted for its variation in staining properties and the metachromatic stain, crystal violet, was not positive in this instance. The Congo Red stain had a staining intensity similar to that of the control amyloid. A more definite diagnosis of amyloidosis can be made when a Congo Red section is observed with polarized light.⁴ Amyloid combines with the Congo Red and produces a green bi-refringence. Unfortunately, in this case neither control sections nor sections from the case demonstrated this reaction. Probably the type of

Congo Red used did not combine with the amyloid. A more recent specific test for direct fluorescence of the amyloid after staining with thioflavin T was not available.⁵ Therefore, we are left with the diagnosis of chronic glomerulonephritis. Whether or not there is superimposed amyloidosis is not determined.

Final Pathological Diagnosis

1. Chronic Glomerulonephritis (\pm Secondary Amyloidosis)
2. Massive Gastrointestinal Hemorrhage
3. Bronchopneumonia
4. Cardiac Hypertrophy
5. Pulmonary Congestion
6. Adrenal Atrophy (zona fasciculata and reticularis)

7. Lymph node Atrophy
8. Testicular Atrophy

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Acute Toxicity of Tannic Acid Administered Intragastrically

E. M. Boyd (Department of Pharmacology, Queen's University, Kingston, Ont) *Canad Med Assoc J* 92:1292 (June 19) 1965

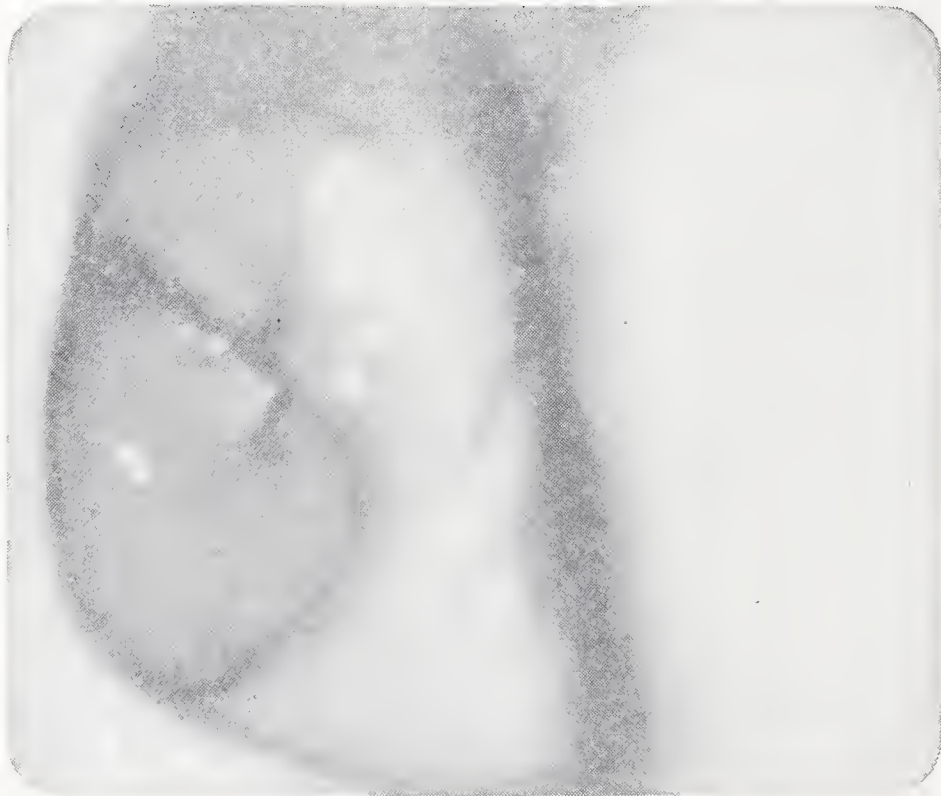
The LD₅₀ of tannic acid given orally to albino rats was found to be 2.26 gm/kg of body weight, which is higher than its apparent LD₅₀ when given rectally. The immediate cause of death was respiratory failure preceded by convulsions when death occurred early, and by hypothermic cachexia when death was delayed. Death was associated with a progressively developing hepatic necrosis and nephritis and a temporary acute gastroenteritis. It was accompanied by loss of weight and edema in many organs, evidence of stimulation of the spleen, adrenal cortex, and testes, and atrophy of the thymus. Recovery in survivors was associated with a temporary increase in weight of the spleen and testes and persistence of loss of weight in the adrenals, pyloric section of the stomach, and skin.

Malignant Melanoma Arising From an Intradermal Nevus

M. Okun and L. Bauman (Boston City Hosp, Boston) *Arch Derm* 92:69 (July) 1965

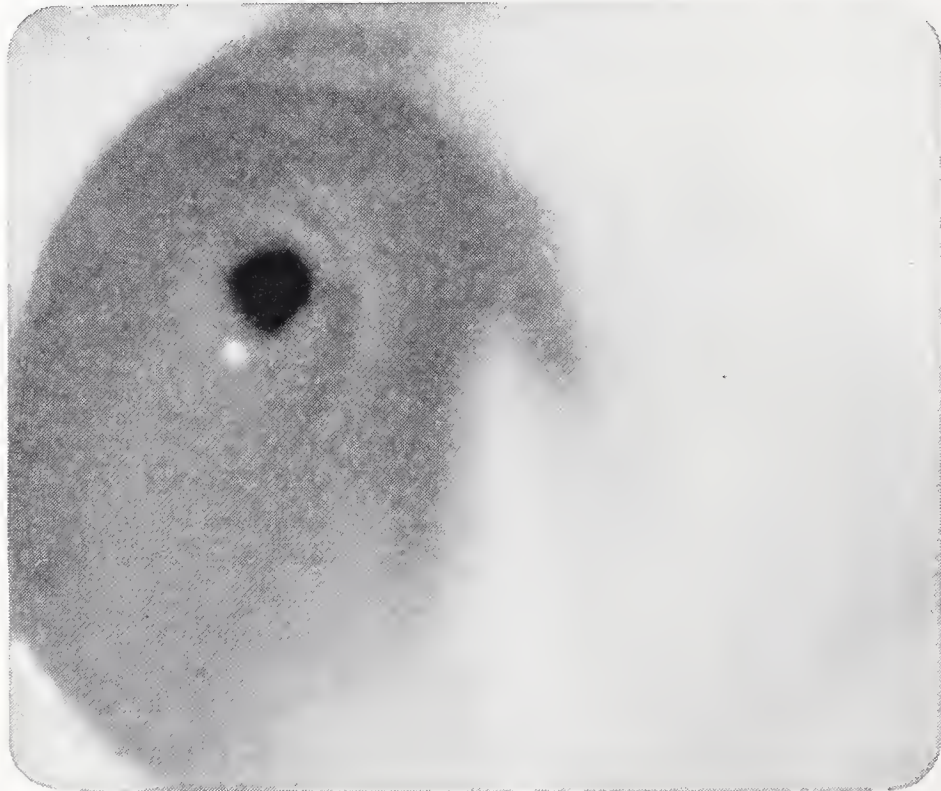
A malignant melanoma apparently arising from the lower margin of a longstanding intradermal nevus was observed in a specimen from the scalp of a 61-year-old woman. The diagnosis of melanoma was made on the basis of the presence of small amounts of brown pigment in the tumor which was argentaffin and did not accept Perl's stain, the presence of argentaffin granules in the nonpigmented tumor cells, and the characteristic nesting of the tumor cells. In some areas, the malignant tumor cells appeared to merge with the ordinary nevus cells at the lower margin of the benign component of the lesion. Serial sections revealed no connection of the malignant portion with the epidermis. This case is of interest since it illustrates the rare possibility of malignant transformation in an intradermal nevus.

Intragastric photography studies¹



A/ E. B., male, age 48. Normal antral contraction. Pyloric opening is not seen. It is difficult to differentiate a deep prepyloric contraction from a "pyloric fleurette" or true pylorus.

B/ Same subject after 6 mg. of propantheline bromide intravenously; antral contractions ceased. The pyloric orifice remained open and was easily identified. Better visualization of the antrum was also obtained.



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Pro-Banthine produced complete cessation of gastric, antral and pyloric motor activity with a dose of 6 mg. intravenously. This is approximately one-third the usual oral dose of 15 mg.

Atropine at full normal dosages did not produce such cessation. It required double the usual oral dose of atropine, 0.8 mg. intravenously, to duplicate the aperistaltic action of Pro-Banthine. This dose of atropine produced pronounced discomfort and tachycardia with ventricular rates as high as 150 per minute.

It is this pharmacologic superior-

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Dosage—The maximal tolerated dosage is usually the most effective. For most *adult* patients this will be four to six 15 mg. tablets daily in divided doses. In severe conditions as many as two tablets four to six times daily.

Side Effects and Contraindications — Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action may occur. The drug is contraindicated in patients with glaucoma or severe cardiac disease.

Pro-Banthine (brand of propantheline bromide) is supplied as tablets of 15 mg., as prolonged-acting tablets of 30 mg. and, for parenteral use, as serum-type ampuls of 30 mg.

1. Barowsky, H.; Greene, L., and Bennett, R.: Investigators' Clinical Report. Photographs courtesy of Drs. H. Barowsky, L. Greene and R. Bennett.

2. Barowsky, H.; Greene, L., and Paulo, D.: Paper read at Meeting of American Society for Gastrointestinal Endoscopy, Montreal, Canada, May 25-27, 1965.

SEARLE

Research in the Service of Medicine



STUDIES FROM

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OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor and Chairman

STEWART FISH, M.D., Editor

An Evaluation of the Medical Management of Thyrotoxicosis in Pregnancy

Kenneth E. Petri, M.D.

Introduction

The principle objection to the use of antithyroid drugs in the medical management of thyrotoxicosis in pregnancy is the fear of producing hypothyroidism and goiter in the infant. This study was undertaken in an effort to clarify the role of the nonsurgical management of thyrotoxicosis in pregnancy and to determine the long term effects, if any, on the growth and development of children born of such pregnancies.

Physiology

Thyroxin is a molecule composed of two oxygen bonded benzene rings to which four atoms of iodine and the amino acid alanine are attached. Thyroxin is formed in the cells of the thyroid gland by a multistep process catalyzed by the anterior pituitary thyroid stimulating hormone (TSH). It is stored as colloid in the thyroid acini in combination with protein and is released into the blood stream by the influence of TSH which itself fluctuates in blood level inversely with thyroxin.⁵

Recent investigations indicate that the thyroid elaborates other hormone substances in addition to thyroxin. One of these is tri-iodothyronine (T₃) which possesses thyroid activity about five fold that of thyroxin.¹⁸ It is believed that T₃ represents the active form of the thyroid hormone and that thyroxin is converted to tri-iodothyronine in the liver and kidney.³⁰

Ingested iodine causes the thyroid gland to store

its own hormone so as to take up the increased blood iodine. For this reason iodine alone, as Lugol's solution, may sometimes be effective in treatment of mild hyperthyroid states. Iodine also acts to diminish the vascularity of the toxic gland and reduces the size of the gland made hyperplastic by antithyroid treatment.

In 1943 McKenzie and co-workers described the antithyroid effects of the thioureas. These substances inhibit thyroid function by preventing the binding of iodine into the tyrosine molecule, the initial step in the process of thyroxin formation. With a consequent fall in circulating thyroxin, TSH rises and hypertrophy and hyperplasia of the thyroid gland begins. This is the reason that goiter develops with long term antithyroid therapy and why the term "goiterogens" is applied to these drugs. The newborn infant of the thiouracil treated mother may have an enlarged thyroid by the same process since thiouracil readily crosses the placental barrier.³¹ It has also been demonstrated that thyroxin passes from mother to fetus,²² but the TSH does not.²⁴

Another antithyroid preparation, potassium perchlorate, has gained some recent popularity. Perchlorate has a mode of action different from that of the thiouracils. It competes with iodine in thyroid gland uptake, thereby reducing the iodine saturation and diminishing circulation thyroxin.¹ Perchlorate is a small molecule which easily passes into the vessels of the placental villi and is concentrated in the fetal thyroid. The fetal gland's ability to produce thyroxin remains depressed for some time after birth until the perchlorate has been dissipated. Unless the infant so

From the Department of Obstetrics and Gynecology, University of Arkansas Medical Center, Little Rock, Arkansas.

affected is provided with exogenous thyroid, serious effects from hypothyroidism may occur.

Review of Literature

The reluctance of many physicians to use the antithyroid drugs during pregnancy complicated by thyrotoxicosis stems from numerous reports of fetal thyroid inhibition, ranging from transient asymptomatic goiter through mild hypothyroidism to cretinism. Piper and Rosen²³ in 1954, reported eighty-three pregnancies treated with antithyroid drugs with 77 living infants and 6 stillborns resulting. Fourteen or 18% of the live babies had goiter which spontaneously disappeared in 3 to 9 months. These authors noted the danger of suffocation from tracheal compression in these congenital goiters and concluded that antithyroid treatment is distinctly hazardous to the fetus. Hone and Magarey reported a cretin born to a mother treated with methylthiouracil. Severe hypothyroidism in the newborn of a mother treated with propylthiouracil throughout pregnancy is noted in a CPC from Boston Children's Medical Center.⁸ Transient congenital goiters and/or transient mild hypothyroidism have been reported by many authors.^{2, 7, 13, 15, 17, 21, 23, 26} Elphinstone¹⁰ reports an infant born with an enlarged thyroid with some cretinoid features and mental retardation, though with normal physical and skeletal development.

The opposite viewpoint, which favors the use of the antithyroid drugs, is represented by a number of authors who treated small series¹ of thyrotoxic patients using the thiourea derivatives with no resultant fetal problems. Hudspeth and Maragulis¹⁶ report five patients, two of whom received propylthiouracil throughout pregnancy and in whom no fetal goiter or other fetal thyroid problem resulted. They advocate goiterogenic drugs as the "safest" treatment during pregnancy. Greenman, et al.,¹² report three patients treated with propylthiouracil for all or part of pregnancy with subsequent delivery of normal infants.

Materials and Method

Maternal and infant hospital records from the University of Arkansas Medical Center from 1950 through 1961, were reviewed. A total of twenty cases of hyperthyroidism in pregnancy was seen in this period during which there were 26,394 deliveries, giving an incidence of .077 percent. This percentage is compared with the previously reported range of .016 to 1.039 percent.

In order to determine the long-term fetal effects

of maternal treatment with antithyroid drugs, each of our fourteen patients who received antithyroid medication during pregnancy was contacted and asked to bring for examination the child that resulted from the thyrotoxic pregnancy.

Results

In two of the twenty thyrotoxic pregnancies studied, gestation did not reach the stage of fetal viability. One of these terminated at three months by spontaneous abortion with uncontrolled hyperthyroidism. The other resulted in ruptured tubal pregnancy in an untreated patient. Another patient received no antithyroid medication for six weeks prior to delivery and therefore contributes nothing to this study. A fourth patient failed to deliver at University Hospital and was eliminated from the study.

Two patients had subtotal thyroidectomy in mid trimester without maternal complication and subsequently delivered normal infants at term.

The remaining fourteen patients who comprise the main study group were treated with one of the antithyroid preparations—thirteen of these with a thiourea and one with potassium perchlorate. Of this group of fourteen patients contacted, seven presented themselves and among the seven there were six surviving children. The non-surviving infant in this group was the product of a full-term gestation during which the mother received potassium perchlorate, 1000 mgm. daily. The infant was hypothyroid without goiter at birth, was treated with thyroid and was completely normal at one month of age. At three months of age the infant died suddenly of unknown cause.

The six survivors ranged in age from five months to ten years. With the assistance of the Pediatric department, a physical examination was done on each child and his mental and social development were evaluated using the Vineland testing system. None of the six children had a palpable goiter, all were within normal growth limits and all were found to be average or above average mentally and socially.

The other seven patients of the fourteen in the primary study group delivered normal, viable infants, without evidence of thyroid inhibition. These seven did not return for follow-up examination.

There were five abortions in a total of eleven

pregnancies during which thyrotoxic symptoms were not treated. These eleven untreated cases represented pregnancies which occurred prior to the diagnosis of thyrotoxicosis in several patients but, in retrospect, after onset of significant toxic symptoms. Only one of these pregnancies is included in the series of twenty since this was the only case under our direct observation. The resulting figure of 46 percent abortions in these untreated patients is of questionable significance because of the small number of patients in the group.

Only one of our twenty patients experienced onset of symptoms during pregnancy and five patients experienced remission of their disease during antithyroid therapy. Remission occurred in one patient during pregnancy and in the other four within six months postpartum.

Age and parity seemed to play a minimal role in the appearance of thyrotoxic symptoms.

Discussion

Normal pregnancy is attended by augmented metabolism which is due primarily to increased thyroid activity believed related to elevated estrogen levels.¹¹ The hypermetabolic state is mirrored in the deviation of PBI during normal pregnancy to limits of six to thirteen micrograms percent as compared with nonpregnant range of 3.5 to 8 micrograms percent. The I 131 uptake increases correspondingly. BMR is usually normal in the first six months of pregnancy rising later in pregnancy to 15 to 25 percent over the non-pregnant levels.^{11, 16}

There is controversy as to the effect of pregnancy in pre-existing thyrotoxicosis.^{6, 8, 23} The consensus seems to be that Graves' disease is inclined to improve during the gravid state. By way of explanation, thyroxin secretion is increased in pregnancy and the thyroxin binding capacity of circulating proteins is elevated to a disproportionately greater degree. This increase tends to reduce available thyroxin and thereby reduce toxic symptoms. The relatively frequent onset of thyrotoxic symptoms during pregnancy is noted by several authors^{2, 17, 19, 20, 27} who postulate that pregnancy may increase vulnerability to the disease.

Because of the normal hypermetabolic state existing in pregnancy, it is not a simple matter to distinguish mild thyrotoxicosis from an exaggerated normal physiology. This is particularly

true in an anxious, neurotic individual who has the hyperplastic thyroid of a normal gravid female. Diagnosis will be firmly established by symptoms of palpitation, increased perspiration, weight loss in face of great appetite, tremor, exophthalmus with attendant eye signs, etc., and by the laboratory evidence of a PBI value greater than 13 micrograms percent and BMR greater than 25 percent.⁹ Radioiodine uptake determinations should be deferred during pregnancy since the fetal thyroid has a proclivity iodine 20 to 25 times that of the maternal gland²⁵ and fetal thyroid activity may conceivably be seriously jeopardized by repeated I 131 uptake studies.^{14, 25}

In the days prior to advent of antithyroid drugs, Graves' disease associated with pregnancy traveled its natural course impeded only by efforts at sedation and rest. In 1913 Seitz²⁸ reported 112 collected cases of thyrotoxicosis in pregnancy in which there were eleven premature labors, three abortions, three macerated fetuses, and seven maternal deaths. In uncontrolled patients violent labor and postpartum hemorrhage are common. The immediate postpartum period is said to be the most hazardous for it is then that the threat of thyroid crisis is greatest. Laufe¹⁹ described such a case with rapid labor, pulse 190 per minute, cardiac failure, and pulmonary edema. It is, therefore, clear that every effort should be made to control the hyperthyroid state well before the onset of labor.

There are now available 3 modes of management of hyperthyroidism, two of which are acceptable during pregnancy. The third radioactive iodine, is strictly contraindicated in pregnancy. In deciding between the two acceptable modes—medical management with antithyroid drugs and surgery in the form of subtotal thyroidectomy—factors inherent in each of these methods need to be considered. It is known that a permanent remission will occur with antithyroid treatment in a significant percentage of young women treated, as is borne out in our series. It has been established that the dangers to the fetus of antithyroid treatment during pregnancy are real, but that the fetal effects are almost invariably reversible when they occur. It is agreed that surgery should be confined to the second trimester because of the possibility of causing abortion in the first three months of pregnancy and premature labor in the last. This ob-

viously limits its applicability. Too, a patient must be rendered euthyroid by antithyroid medication supplemented by iodine before the surgeon will consider subtotal thyroidectomy. Finally, as Zellman³² has pointed out, subtotal thyroidectomy is no more without occasional fetal and maternal ill effects than are the thiouracils. He notes the incidence of permanent myxedema following subtotal thyroidectomy as 6.0 percent and of hypoparathyroidism as .8 percent. The mortality rate from the operation itself was found to be .19 percent and a recurrence rate of hyperthyroidism of 1.9 percent after the subtotal operation was noted.

Consideration of these factors and of our own favorable experience with the thioureas has led to the conclusion that medical management in the form of propylthiouracil or methimazole is in most instances superior in pregnancy to subtotal thyroidectomy.

In certain cases, surgery must be relied upon. When a patient develops sensitivity to thiouracil (in form of granulocytopenia, rash, or GI upset),²⁹ it may be necessary to move to surgery if the patient's condition permits, although it may be feasible to switch to methimazole instead. In the relatively uncommon case of thyrotoxicosis in a pregnant patient over 35 years of age (in which group the prognosis for remission with medical treatment is poor) surgery would seem the better approach. Surgery is also indicated when relapse occurs after remission on prolonged drug therapy and with progressive enlargement of the goiter under medical treatment. If surgical management is chosen for these or other reasons, it is imperative, as Bell of Lahey Clinic has demonstrated^{3,4} that the patient be carried postoperatively on dessicated thyroid or its equivalent (e.g. tri-iodothyronine) through delivery, so as to prevent the disastrous fetal effects of maternal hypothyroidism.

There is no advantage of propylthiouracil over methimazole—either may be used effectively. It is desirable to reduce the antithyroid dosage 2-3 weeks before the expected date of confinement and to concurrently add thyroid to the regimen so as to assure adequate fetal thyroxin and minimize the possibility of goiter.

Summary

1. Twenty patients with thyrotoxicosis in pregnancy are reviewed.

2. The physiology of the thyroid hormones and the characteristics of the antithyroid drugs are briefly discussed.
3. Infants of fourteen antithyroid treated mothers are evaluated with regard to presence of hypothyroidism and/or goiter at birth. The present condition of seven of these children is evaluated.
4. An attempt is made to make a rational choice between available modes of management in thyrotoxicosis in pregnancy.

Conclusions

1. In the twenty cases reviewed, the only instance of hypothyroidism and/or goiter at birth resulted from treatment with potassium perchlorate. In the thirteen cases treated over a protracted period with the antithyroid preparations, propylthiouracil and methimazole, no evidence of fetal thyroid inhibition was found at birth. The six children of this group who were examined at follow-up were normal. This attests to the relative safety of the thioureas with regard to the effect on fetal thyroid function.
2. The frequent occurrence of remission of thyrotoxicosis during antithyroid therapy in women of childbearing age is borne out in our series.
3. Antithyroid drugs in the form of methimazole and propylthiouracil would seem to be the treatment of choice in most obstetric patients with thyrotoxicosis.

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Orbito-Ventromedial Undercutting, 1957-1963: Follow-up Study of 77 Cases

S. Hirose (Nippon Medical College, Tokyo) *Amer J Psychiat* 121:1194-1202 (June) 1965

A follow-up study of 77 patients who underwent orbitoventromedial undercutting for the treatment of mental disorders during the period of July 1957 to December 1963 is presented. Of the 77 patients, 55% were discharged, and most of them returned to normal work. Forty-five percent remained in the hospital, but among them, 80% are working and living on a much happier level than before the operation. There were no operative deaths. The most favorable results were observed in patients with atypical schizophrenia, such as recurrent catatonia and paraphrenia, manic-depressive psychosis without remission, severe involutional psychosis, and epilepsy with explosive behavior. The orbito-ventromedial undercutting method can produce the maximum of therapeutic effects on the indicated pathological mental symptoms without any serious side effects.

Sarcoma Arising in a Leiomyoma of the Uterus: Factors Influencing Prognosis

A. C. W. Montague, D. P. Swartz, and J. D. Woodruff (The Johns Hopkins University School of Medicine, Baltimore) *Amer J Obstet Gynec* 92:421-427 (June 1) 1965

A series of 38 cases of sarcoma in myoma were reviewed and the factors influencing the prognosis evaluated. Recovery in patients under the age of 50 years was excellent, but few patients over the age of 50 survived. The total three-year survival rate was 58%. No patients whose tumor showed evidence of extension at the time of treatment survived, but of the 24 patients whose tumor was localized, only four died. The prognosis was generally poor when there was vascular involvement. The authors emphasize the high incidence of submucous myomas in this series. Irradiation had little therapeutic value in these sarcomas. As compared with mitosis, pleomorphism was an inaccurate means of determining the degree of cellular anaplasia.

DOCTOR DRAFT TO BE INCREASED

The following correspondence pertaining to the stepped-up doctor draft is published for physicians' information with the permission of Dr. Gerald Teasley of Texarkana, chairman of the Arkansas State Advisory Committee to the Selective Service System:

Mr. Paul Schaefer
Arkansas Medical Society
Fort Smith, Arkansas

Dear Mr. Schaefer:

Enclosed you will find an operation bulletin issued by the National Headquarters of the Selective Service System. I think it would be of value if this were published in the earliest issue of the Arkansas Medical Journal in which it will be convenient to print a copy.

A covering letter from the Little Rock office of the Selective Service System indicates that a call for thirteen physicians, six dentists, and two veterinarians has been placed for January, 1966. This is a comparatively small number for our state and should not disrupt medical and dental care for either the physicians or patients to any great extent.

A number of physicians apparently are receiving orders to report for examination, and are misinterpreting this order, thinking it means a call to active duty. Those who receive orders to report for examination are not being called to active duty. This is simply a step on the part of the Selective Service System to find how many people are available who are physically qualified and to properly classify them. It in no way means that this individual is going on active duty.

If the physicians receiving such orders knew this fact, it would save them a great deal of time and worry to realize that it is not for induction, but for examination and classification only.

This morning, I received two copies of a letter that you had sent concerning reactivation of the Advisory Committee to the Selective Service System. I think this is a very excellent move. As it happens, I am continued on as chairman by order of the President of the United States and will maintain that position until relieved by him. I believe the chairman in each state was maintained in this category. There has been very little responsibility attached to this position for a long while, but activity may increase if the war emergency should increase in scope.

Sincerely yours,
Gerald H. Teasley, M.D.

ARKANSAS STATE HEADQUARTERS SELECTIVE SERVICE SYSTEM

Little Rock, Arkansas 72201

Gerald H. Teasley, M.D.

Chairman

Arkansas Medical Advisory Committee

401 East Fifth Street

Texarkana, Arkansas

Dear Dr. Teasley:

Inclosed, please find copy of Selective Service System Operations Bulletin No. 280 regarding physicians, dentists, veterinarians and optometrists.

Please be advised that this Headquarters is scheduling physical examination for physicians, dentists, and veterinarians in the categories as prescribed in Operations Bulletin No. 280.

There have been no orders to report for induction issued to date to physicians, dentists and veterinarians as a result of this Operations Bulletin.

This state has received a call for January 1966 as follows:

Physicians	13
Dentists	6
Veterinarians	2

It is hoped that the above information will be of assistance to you. If this Headquarters can be of any further assistance please feel free to call on us.

FOR THE STATE DIRECTOR:

U. E. HOLLAND

Lt. Colonel, AGC

Chief, Manpower Division

Encl.

NATIONAL HEADQUARTERS SELECTIVE SERVICE SYSTEM

1724 F Street NW

Washington, D.C. 20435

OPERATIONS BULLETIN NO. 280

ISSUED: SEPTEMBER 23, 1965

SUBJECT: *PHYSICIANS, DENTISTS, VETERINARIANS AND OPTOMETRISTS*

1. Reference is made to Operations Bulletin No. 279 and Local Board Memorandum No. 77. This Headquarters has received a special call for 1,529 physicians, 350 dentists, and 100 veterinarians to enter on active duty beginning in January 1966.

2. *Physicians Not in Internship.* (a) In order to fill the call for physicians it is requested that local boards immediately:

(1) Order for physical examination all physicians in Classes 1-A, 1-A-O, 11A, 11-S and 111-A, unless they have been examined since April 1, 1965.

(2) Obtain current classification information from all physicians in Classes 1-A, 1-A-O, 11-A, 11-S, and 111-A. Within the time limit set by local boards for receipt of this information, local boards shall reopen and consider anew the classification of these physicians. This processing including adjudication of appeals should be completed by December 1, 1965.

(b) In determining the classification of these physicians the current personnel requirements of the armed forces shall be considered. Physicians should not be classified in Class 11-A to complete residency unless the local boards determine their services are absolutely essential to the operation of the hospital.

3. *Dentists and Veterinarians.* (a) It is requested that local boards reopen and consider anew the classification of all dentists and veterinarians classified in Class 1-A, 1-A-O, 11-A, 11-S, and 111-A born in 1937, and in later years.

(b) Dentists and veterinarians now or later classified in Class 1-A or 1-A-O should be ordered immediately for physical examination unless they have been examined as dentists or veterinarians since April 1, 1965.

4. *Optometrists.* The Army and Air Force are reported to be extremely short of optometrists. This should be considered in processing these registrants.

5. Operations Bulletin No. 243 is hereby rescinded. Operations Bulletin No. 271 was rescinded by Operations Bulletin No. 0, dated September 1, 1965.

Lewis B. Hershey
DIRECTOR



STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Act of October 23, 1962: Section 4369, Title 39, United States Code.) Publisher: File two copies of this form with your postmaster.

1. Date of filing, October 1, 1965. 2. Title of Publication, The Journal of the Arkansas Medical Society. 3. Frequency of issue, Monthly. 4. Location of known office of publication (Street, city, county, state, zip code), 114 E. Second Street, Little Rock, Arkansas 72203. 5. Location of the headquarters or general business offices of the publishers (Not printers), 218 Kelley Building, Post Office Box 1208, Fort Smith, Arkansas 72902. 6. Names and addresses of publisher, editor, and managing editor, Publisher (Name and address), Arkansas Medical Society, 218 Kelley Building, P.O. Box 1208, Fort Smith, Ark. 72902; Editor (Name and address), Alfred Kahn, Jr., M.D., 1300 West Sixth Street, Little Rock, Arkansas; Managing Editor (Name and address), Mr. Paul C. Schaefer, 218 Kelley Building, P.O. Box 1208, Fort Smith, Arkansas 72902. 7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.) Name, Arkansas Medical Society (non-profit organization, incorporated); address, 218 Kelley Building, P.O. Box 1208, Fort Smith, Ark. 8. Known Bondholders, Mortgagees, and other Security Holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities (If there are none, so state.) None. 9. Paragraphs 7 and 8 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Names and addresses of individuals who are stockholders of a corporation which itself is a stockholder or holder of bonds, mortgages or other securities of the publishing corporation have been included in paragraphs 7 and 8 when the interests of such individuals are equivalent to 1 percent or more of the total amount of the stock or securities of the publishing corporation. 10. This item must be completed for all publications except those which do not carry advertising other than the publisher's own and which are named in sections 132.231, 132.232 and 132.233, postal manual (Sections 4355a, 4355b, and 4356 of Title 39, United States Code). A. Total No. copies printed (net press run) Average No. copies each issue during preceding 12 months, 1915; single issue nearest to filing date, 1,950. B. Paid circulation, 1. Sales through dealers and carriers, street vendors and counter sales; 2. Mail Subscriptions, Average No. copies each issue during preceding 12 months, 1,363; Single issue nearest to filing date, 1,391. C. Total paid circulation, Average No. copies each issue during preceding 12 months, 1,363; Single issue nearest to filing date, 1,391. D. Free distribution (including samples) by mail, carrier or other means, Average No. copies each issue during preceding 12 months, 520; Single issue nearest to filing date, 524. E. Total distribution (Sum of C and D), Average No. copies each issue during preceding 12 months, 1,883; Single issue nearest to filing date, 1,915. F. Office use, left-over, unaccounted, spoiled after printing, Average No. copies each issue during preceding 12 months, 32; Single issue nearest to filing date, 35. G. Total (Sum of E & F—should equal net press run shown in A), Average No. copies each issue during preceding 12 months, 1,915; Single issue nearest to filing date, 1,950. I certify that the statements made by me above are correct and complete. (Signature of editor, publisher, business manager, or owner)—Mr. Paul C. Schaefer, Business Manager

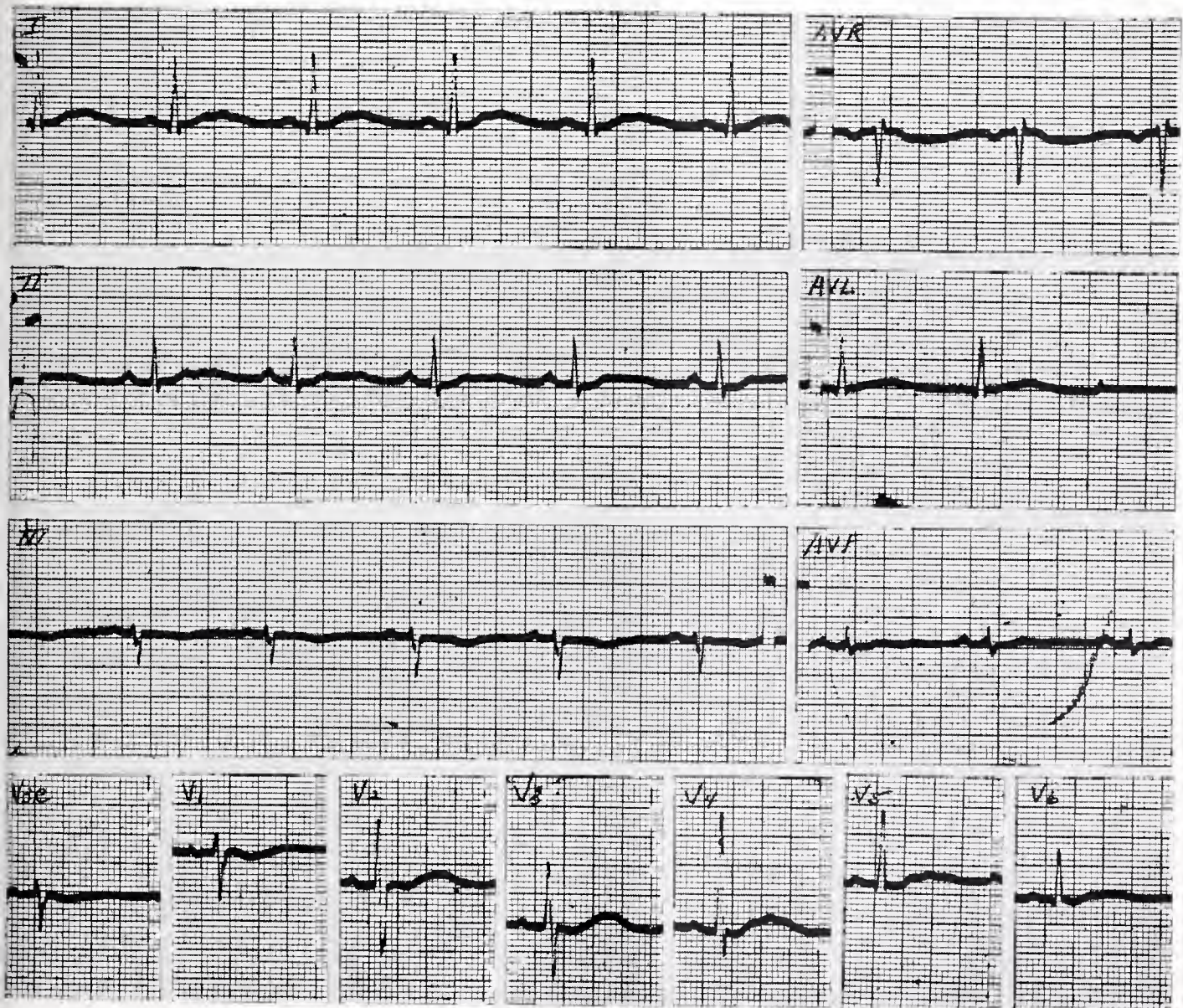


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 35 SEX: F BUILD: Stocky BLOOD PRESSURE: 110/70
CARDIAC DIAGNOSIS: None
OTHER DIAGNOSES: Aldosteronism?
MEDICATION: None
HISTORY: Generalized weakness

ANSWER ON PAGE 241



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 241



22-67-09

1 day old female

HISTORY: This is a one kilogram premature infant in whom amniotic fluid was aspirated at delivery. The film was taken for evaluation of the chest. The patient did well following surgical treatment.



Preparation for International Travel

Increase in international travel has increased the problem of the physician and health authorities in assisting travelers to take safeguards for their protection and of those at home upon their return. Jet age transportation has increased health dangers, "shortening the distance" between far corners of the earth and Arkansas. The incubation period of many diseases encountered in foreign travel extends beyond the return date of the traveler to his home. For this reason, and to prevent the illness of those traveling and of their being responsible for other cases of such diseases as smallpox, for instance, reappearing, certain immunizations are required by the United States and other countries for those entering their borders. Foreign Quarantine regulations are based on the incubation period of each disease. Next to the passport and the visa, the most important document for foreign travel is the International Certificates of Vaccination. Every day hundreds of world travelers who forgot this fact run into delays in quarantine. The reason: They fail to present valid certificates of vaccination.

We will attempt to clarify the requirements for international travel and the attendant Certificates of Vaccination in this article.

International Certificates of Vaccination. Immunization records for international travel are required to be entered on the "International Certificates of Vaccination", form PHS-731 Rev. 6-61. This form is not supplied by our State or local health departments, except when the State Health Department, as Yellow Fever Vaccination Center No. 41, administers yellow fever vaccine. It may be secured at the District Clerk's Office (Federal) when making application for passport, through travel agencies, or it may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at 10c a copy.

The cover of this form must have the name of the vaccinee printed in full, either typewritten or printed in ink, on the first line; the street and number or other local address on the second line; the city on the third line; and the county and state on the fourth line. Detailed instructions to the physician are shown on page 10, and we quote them below for your ready reference:

1. Information requested on each certificate must be complete for the certificate to be valid.
2. The space for primary vaccination against smallpox is to be used only when a person receives his vaccination for the *first* time. If unsuccessful a new certificate must be used for a repeat primary vaccination.
3. The dates on each certificate are to be written with the day in arabic numerals, followed by the month in letters and the year in arabic numerals. Example, October 1, 1959, should be written 1/Oct./59.
4. Vaccinations may be performed by a nurse or medical technician if under a physician's direct supervision. The physician's *written* signature must appear on the certificate; signature stamp is not acceptable. (Information has been received stating: "Written signature of the physician, even though his nurse or technician may have given the vaccination.")
5. If vaccination is contraindicated the physician should provide the person with a written opinion, which port health authorities *may* take into account.
6. Official immunization requirements for international travel and the list of designated yellow fever vaccination centers in the United States are contained in the booklet "Immunization Information for International Travel", PHS No. 384, on sale at the Superintendent of Documents, U.S. Government Printing Office,

Washington, D.C. 20402. (35c a copy) Changes in requirements may be obtained from local or State health departments. (Each local health department in Arkansas has one of these booklets and is provided information as to any changes as such information is released.)

7. Additional information concerning certificates and immunization requirements may be obtained from the Epidemiology and Domestic Operations Branch, Division of Foreign Quarantine, U.S. Public Health Service, Washington, D.C. 20402.

Smallpox. Evidence of vaccination against smallpox within three years is required by most countries at the time of arrival. Military dependents are required to have a smallpox immunization within the past year. The countries in western Europe normally do not have this requirement for travelers from the United States, although many require a valid certificate if the person is arriving from an infected area, as those arriving from Switzerland a few years ago. The recent outbreaks in a few countries of Europe and recent cases in our own country, as the result of the disease being imported, are indicative of the need of vaccination in advance of a trip. Smallpox is endemic in many countries of Asia and Africa and a few South American countries. A valid certificate of vaccination against smallpox helps to expedite travelers at ports of entry, and is required to return to the United States with a few exceptions. Persons not presenting a certificate are subject to vaccination or surveillance up to 14 days, or both, or to detention up to 14 days at their own expense.

Consideration is given to a physician's request for exemption in the case of a traveler who is ill, or of advanced age, or where medically contraindicated for a stated reason, when he provides the traveler with a statement on his physician's letterhead giving reasons for that opinion, which the health authority at the port of arrival *may* take into account. Even then, the individual may be subjected to surveillance or observation by the country of entry or transit.

To be valid the certificate must be complete in every detail, including the following items:

- Name of the person vaccinated or revaccinated.
- His signature (a parent or guardian may write the child's signature followed by his or her name and relationship).
- Sex, preferably written out — "male" or "female".
- Date of birth—the day in arabic numerals, followed by the month in letters and the year in arabic numerals, as 1/Oct./59.
- Record of either (1) primary vaccination, read as successful, using both sections 1a and 1b, or (2) revaccination, using first section 2, and for later revaccinations sections 3, 4, etc.
- Written signature of the vaccinating physician, even though his nurse or technician may have given the vaccination; the "M.D."; and his address.
- A stamp approved by the health administration of the country in which the vaccination was performed. In Arkansas, this is the "OFFICIAL VACCINATION" stamp which has been provided each local health department and the State Health Department. This stamp is not to be placed on the certificate until it is complete in every detail. These "OFFICIAL VACCINATION" stamps are registered with the U.S. Quarantine Division and the World Health Organization, and the numbers on the stamp identify the validating office.

Yellow Fever. The State Health Department has been designated Yellow Fever Vaccination Center No. 41 and is the only place in Arkansas where this vaccination is administered. Because yellow fever vaccine is highly thermolabile and must be stored and transported at subfreezing temperatures, strict control of its handling is required. We have received the following notification: "Shipments of the vaccine are to be routed directly from The National Drug Company to the vaccination centers. The vaccine is not to be redistributed by the centers. Persons not receiving their vaccination at a designated center may be subjected to detention at ports of entry that require a valid vaccination certificate." Yellow fever vaccine is administered at the State Health Department each Monday morning, except holidays, at 10 o'clock, and because of the thermolability of the vaccine, immunizations must be completed within an hour. We ask that those to be vaccinated come to the office a little ahead of time to give us an opportunity to complete the certificate before 10 o'clock. We have a special stamp for certification of this certificate. The validity of the yellow fever certificate has been

extended from six to ten years, effective May 12, 1965, and all previously validated certificates are extended an extra four years.

In the event an individual misses the time for yellow fever immunization in the State Health Department, "Immunization Information for International Travel" lists locations of other Centers throughout the United States, showing the days of the week and the times for administration, also whether there is a charge for this service. At present we do not make a charge in Arkansas.

Cholera. Cholera vaccination is recommended for persons traveling into or through an infected area, and children should be immunized from the age of six months. The cholera vaccination certificate is valid for a period of six months, beginning 6 days after the first injection of the vaccine, or on the date of a revaccination within such period of 6 months. The standard course is 2 inoculations given at a 7 to 10 day interval. A booster dose should be obtained at 4 to 6 month intervals as long as danger of infection exists. The standard course need not be repeated at any time. The certificate does not become valid until 6 days from the date of a booster dose

if it is received more than six months after the preceding injection. Cholera vaccine can be purchased from the wholesale drug houses in Little Rock and possibly elsewhere in the State. Recent emphasis has been placed on this immunization for those who will visit or transit Afghanistan, Burma, India, Pakistan, Philippines, Thailand, and Vietnam, in addition to India and East Pakistan where it is usually confined.

Failure to comply with these International requirements may result in the traveler from a cholera-infected area being either refused admission to another country by the quarantine authorities or being placed in quarantine for six days at his or her own expense.

Each dose should be entered in a separate section of the certificate. As in the smallpox vaccination certificate, the top of the form must be filled in completely with the signature of the vaccinee or, in the case of a child, by the parent or guardian as previously mentioned. Again the birth date and the date of the inoculation are to be filled in by the day in arabic numerals, the month in letters, and the year in arabic numerals in that order. The signature must be that of the physician himself, his professional status, and his

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 62 RHYTHM: Sinus

PR: .19 sec. QRS: .07 sec. QT: — sec.

ABNORMAL: Delayed intrinsicoid, left. Prominent U waves partially fused with T.

COMMENT: The prominent U waves on the descending limb of T indicate hypokalemia. At times the abnormality may be confused with a prolonged QT which would suggest hypocalcemia.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Proximal jejunal atresia (web).

X-RAY FINDINGS: The lungs are clear. Large amounts of gas are present in the stomach and duodenum, to the level of the ligament of Treitz, with no gas shadows seen beyond this point. Complete obstruction at this point was confirmed by an Upper GI Series.

address. The OFFICIAL VACCINATION stamp of the health department will then be affixed in each section. Additional spaces for cholera inoculations are provided on the following pages.

OTHER IMMUNIZATIONS. *Typhoid-paratyphoid fever, poliomyelitis, and tetanus* inoculations are recommended for all international travel. Space for these immunization records is provided: the date in proper sequence, the kind of vaccine, the dosage, and the physician's signature. This part of the International Certificates of Vaccination does not require the address of the physician, and the Official Vaccination stamp is not to be affixed. *Diphtheria* immunization is recommended for all children 15 years of age or under, not shown to be immune, as indicated by the Schick test. *Influenza* immunization is recommended on the advice of the private physician.

Typhus inoculations are recommended for persons going to infected areas when they expect to be in places where living conditions are poor.

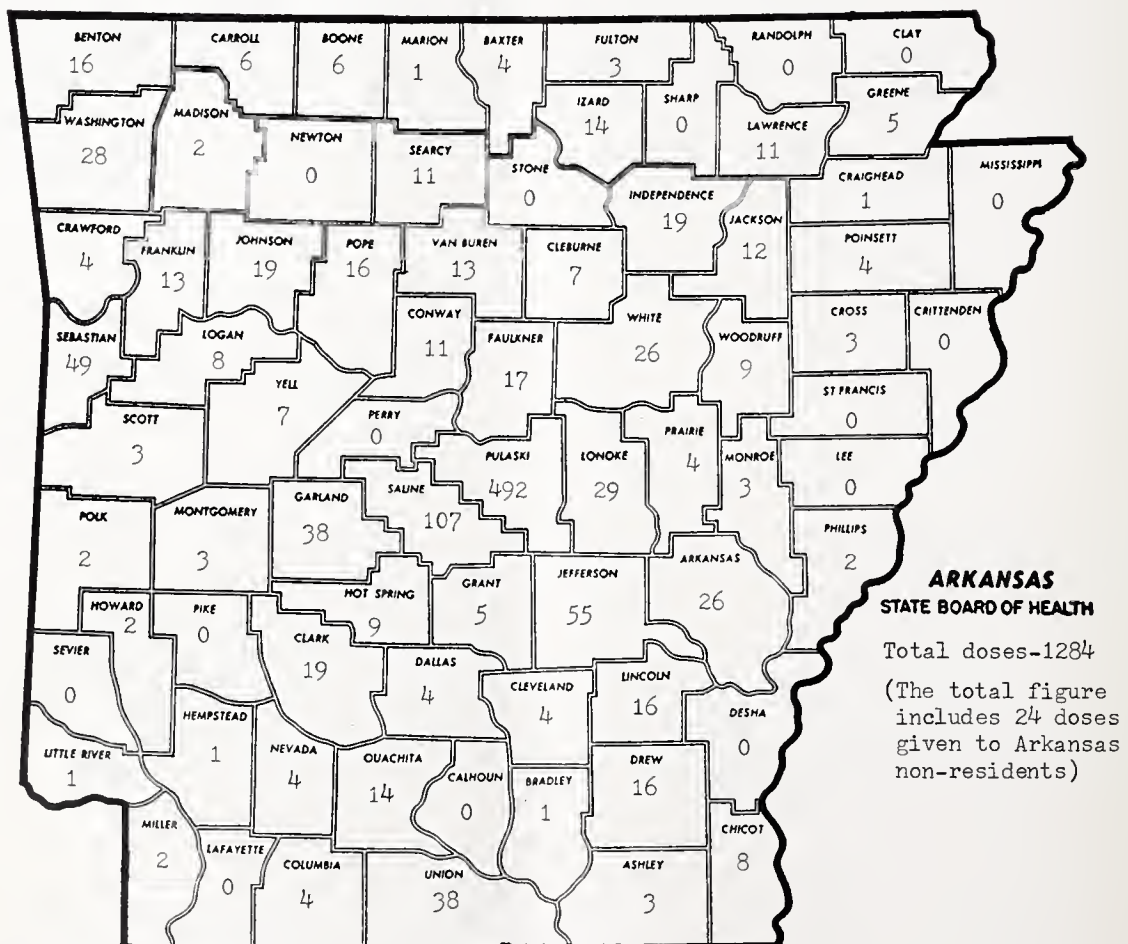
Louseborne, or epidemic, typhus exists in Afghanistan, Korea, China, Ethiopia, Burma, northern India, northwestern Pakistan, Iran, Iraq, Yugoslavia, northern Africa, the Congo, Gambia, Nigeria, Kenya, South Africa, Mexico, the Andean region of South America, and in eastern European countries. The standard course of Louseborne typhus vaccine is two inoculations administered at 7 to 10 day intervals. It is available from the wholesale drug houses in Little Rock and possibly elsewhere in the State. Freedom from louse infestation, however, is the most valuable protection against typhus. Immunization is not required by any country as a condition of entry.

Plague. Immunization against plague is not required by any country for entrance.

The accompanying map shows the yellow fever vaccinations administered in the Yellow Fever Vaccination Center in the State Health Department since its establishment, January 1, 1957, according to the county of residence of the vaccinees.

YELLOW FEVER IMMUNIZATIONS GIVEN

January 1, 1957—August 31, 1965





EDITORIAL

Guest Editorial

TRAFFIC SAFETY

Louise M. Henry, M.D.*

The color defective individual is a safer driver when he knows that the red light is always at the top of a signal group.

The required level of illumination generally must be doubled for each period of 13 years. Thus certain 70 year olds perhaps will be given driver's license limited to day light driving only.

The above is from the report of the committee on traffic safety of the National Medical Foundation for Eye Care. It further states that an Ophthalmologist should be a member of state medical traffic safety committees because the "Vast majority of information utilized in the driving task is obtained visually."

*Chairman, Traffic Safety Committee, 602 Garrison, Fort Smith, Arkansas.

Favorable trends are shown in the following report. In 1951 mileage death rate (deaths per 100 million vehicle miles) was 7.5, in 1963 it was 5.5. This reduction is said to be due to these factors:

1. Increased use of seat belts.
2. More limited access highways. Death rates in 1963, on turnpikes was 2.4, on rural roads 7.2.
3. Safety features in vehicle design, as padding and recessing, better door locks.
4. Improved highway design for better traffic control.
5. Commercial driving education.
6. Driver education in high schools.



Let's Sell Arkansas to Our Medical Students and Interns

Alfred Kahn, Jr., M.D.

At frequent intervals, the Journal of the Arkansas Medical Society receives a request for the name of a general physician who would like to practice in one of our Arkansas communities. These communities are usually prosperous and they have a good trade area for merchants, and unquestionably also for physicians. In many instances, the community would be willing to build a clinic at no cost or low cost to the physi-

cian. Low cost loans are available for instruments and equipment.

Perhaps older physicians have been lazy about selling Arkansas to younger colleagues. This state abounds with opportunities. Professional opportunities are not the only ones. Living in Arkansas to the sports minded can only be described as great. Where can one find good hunting and fishing so close to home? The cost of living in

Arkansas is relatively low and the physicians as a group are prosperous. Taxes are reasonable. Good roads enable a physician in a small town to be in the larger communities quickly, and if there is a real hurry, most communities have an aircraft landing strip. Communications systems, telephone, radio and television completely blanket the state.

Of particular interest to physicians is the fact that the state has hospital facilities scattered all over the state, and the larger cities have good medical centers. The University of Arkansas Medical School has a fine program of postgraduate teaching, and there are many excellent seminars sponsored by the Arkansas Academy of General Practice, specialty societies, and by county Medical Societies. Consultations in all fields are available as near as the nearest telephone. A fine medical library, well staffed by trained medical librarians is available at the University Medical Center.

The businessmen in many cities and towns are contributing time and money to selling Arkansas to our high school and college graduates. Arkansas is growing industrially and in wealth—in addition to having a progressive, mechanized system of agriculture. These business leaders recognize that with river development and industrialization there will be great opportunities for young Arkansans. They are approaching these folks through meetings, luncheons, seminars, trips and selling campaigns on the campuses.

As physicians, we ought to try and sell Arkan-

sas to our medical students. It would be to our states benefit in many ways. Students planning to go into general practice should be urged to consider internships in the private hospitals if the teaching and pay scale is good; the private hospitals have much to offer the alert intern. Students interested in specialties have fine opportunities at the University of Arkansas Medical Center. Interns often practice in the state where they take their training; unquestionably, more Arkansas interns mean more Arkansas practicing physicians. It is easier to sell an Arkansas trained intern on the advantages of Arkansas than to try and sell an intern in another state by mail or occasional personal contact.

Quite aside from any selfish motives in wanting our medical graduates to stay in Arkansas, Arkansas needs more practitioners; this is in the public interest. Moreover, it is expected that the great expense Arkansans incur in training physicians over and above tuition costs, should sell young physicians on the sincerity of this state in promoting better health measures for its citizenry. It is self defeating to force graduates to stay here because it usually results in better students going elsewhere. On the other hand, the training of medical students is a very expensive business if the graduates leave the state.

Why not have a continuing program for selling Arkansas to medical students promoted through the Arkansas Medical Society, and in some way coordinate this with the program now being sponsored by Arkansas business leaders? This is a program of benefit to all.



MEDICINE IN THE



Certificate of Merit Awarded to Dr. Allen

E. Stewart Allen, M.D. of Little Rock has received a Certificate of Merit awarded by the Central Association of Obstetrics and Gynecology for his paper entitled "Hepatic Toxicity of Tetracycline in Pregnancy." Dr. Allen was invited to present this paper at the annual meeting of this organization in Cincinnati in October.

Memorial and Honor Fund

The following have made gifts to the Memorial and Honor Fund of the University of Arkansas School of Medicine:

In Memory of Dr. Robert F. Hyatt, Jr.

Mr. A. J. Hyatt

Mill Valley, California

In Memory of Mr. Edward K. Hyatt

Mr. A. J. Hyatt

Mill Valley, California

AMDOC Organization

The purpose of this non-profit corporation is to assist American doctors, dentists and other professional persons to render medical and health assistance in various needy areas of the Free World. At the present time, more than 65 physicians are serving abroad on AMDOC assignments, carrying the goodwill and intelligence of American medicine to the far corners of the earth, and another 125 applications from physicians are being processed.

FAILURE TO GRADUATE FROM MEDICAL SCHOOL

Findings of the AAMC Study of Medical Student Attrition* show a general increase in the proportion of entrants who failed to graduate from medical school for classes which entered in the ten-year period from 1949 to 1958. These findings were obtained by following individual students over a substantial period of time rather than by comparing the total entrants of one year

with the total graduates of four years later as has been done in most previous attempts to study this problem.

The over-all proportion of entrants who had failed to graduate as of the end of the 1962-63 school year rose from a low of 6.65 per cent for the 1950 entrants to a high of 10.43 per cent for the 1958 entrants.

Attrition data for more recent entering classes are not shown because a substantial number of these entrants were still in medical school when this study was made. Those still in school as of 1963-64 included over 8 per cent of the 1959 entrants and were primarily students who were repeating a year or who had taken time out because of illness or to do research. Students entering in 1960 and thereafter had not been enrolled long enough to have completed the four years normally required for graduation.

For these ten entering classes, dropouts due to academic difficulty consistently accounted for more attrition than did dropouts due to nonacademic reasons (e.g., emotional difficulties, financial problems, insufficient motivation, etc.). Overall attrition rates for this ten-year group of entrants totaled 8.69 per cent, 5.11 per cent being academic dropouts and 3.58 per cent being non-academic dropouts.

Submitted by the Division of Education of the AAMC.

THE MONTH IN WASHINGTON

Washington, D.C.—Despite the flood of major health measures approved by Congress this year, President Johnson apparently plans to propose more important health legislation next year. Health has been given No. 1 priority on the "great society" program, it appears.

Johnson has been telling Congressmen to think in terms of even greater strides next year.

To lay the groundwork for new legislation, he has called a White House Conference on Health Nov. 3-4.

*A special study financed by the Maurice Falk Medical Fund.

Johnson recently took the occasion of signing two health bills to outline his health goals:

—An increase in the average life expectancy from the present 70 years to 75 years.

—A reduction in infant mortality from the present rate of 25 deaths per 1,000 births to 16 per 1,000.

Virtual elimination of polio, diphtheria and typhoid fever and an end to tuberculosis, measles and whooping cough.

—A reduction of 20 per cent in deaths from heart disease, cancer and stroke—the so-called “killer diseases” that now account for one-third of all U.S. deaths.

—Elimination of death and disability among children caused by rheumatic fever and rheumatic heart disease.

—Eradication of malaria and cholera from the entire world.

One of these two health bills he signed into law authorizes a three-year, \$280 million extension of the Health Research Facilities Act. It also authorizes three additional Assistant Secretaries of HEW, one for Health and Medical Affairs. A special assistant to the secretary had been the top official for Health and Medical Affairs.

The other bill amends the Vaccination Assistance Act and extends it for five years. It authorizes Federal expenditures of \$8 million a year, broadens the program to include measles and any other disease designated by the Surgeon General of the Public Health Service and makes the immunization program a continuing one, rather than “an intensive community vaccination (program) of limited duration.” Expenditure of \$45 million during the next five years also is authorized for family health clinics for migratory workers.

Neither the chairman nor the vice chairman of the White House Conference on Health is a physician. However, five of the nine members of the executive committee to plan for the conference are physicians. All were appointed by Johnson.

George Beadle, Ph.D., president of the University of Chicago, will be chairman and Boisfeuillet Jones, former special assistant to the HEW Secretary, vice chairman.

Physicians on the executive committee are Dwight L. Wilbur of San Francisco, a member of

the Board of Trustees of AMA; George James, New York health commissioner; Lowell T. Coggeshall, trustee and former dean of the Medical School, University of Chicago; Montague Cobb, professor of anatomy, Howard University Medical School and former president of the National Medical Association, and Michael E. DeBakey, professor of surgery, Baylor University.

The chief executive said the purpose of the conference is to bring together “the best minds and the boldest ideas to deal with the pressing health needs of the nation.” He said he hopes the conference will develop “creative programs that will bring better health to every American.”

* * *

The Food and Drug Administration issued two proposals designed to eliminate possible causes of illness. One called for a reduction in the amount of vitamin D added to food products and the other for pasteurization of commercial egg products.

Last November Dr. Robert Cooke of Johns Hopkins University expressed concern that the ingestion of excessive amounts of vitamin D was a possible cause of infantile hypercalcemia. FDA Commissioner George P. Larrick then invited the Committee on Nutrition of the American Academy of Pediatrics and a joint committee of the Council on Foods and Nutrition and the Council on Drugs of the American Medical Association to look into this problem.

Both committees recommended that, while there has been no positive demonstration of a cause and effect relationship of vitamin D to this disease, there should be restrictions on the marketing of foods containing added vitamin D.

The committee made clear that there is abundant scientific evidence to demonstrate that an excessive intake of vitamin D is of no value and that 400 USP units per day will meet the full requirements of infants, children and nursing mothers.

Larrick concluded that “prudence” called on limiting the amount of the vitamin added to foods.

The proposal would permit the continued addition of vitamin D to such foods as milk, milk products and infant formulas at a level of 400 USP units per quart. Over the counter vitamin D preparations would be limited to a dosage of 400 USP units of vitamin D per day. Vitamin D

preparations containing over 400 USP units per day would be sold only on prescription. The proposal would deny authority for the addition of vitamin D to standardized foods such as enriched flour, enriched corn meal, enriched rice, enriched macaroni products, enriched bread and margarine.

Requiring pasteurization of commercial egg products was aimed at eliminating possible hazards to consumers from Salmonella bacteria in foods that contain eggs. During the past fiscal year, 220,150 pounds of egg products were seized for Salmonella contamination. Such products are used as ingredients in many other foods, including premixed and ready-to-eat foods that the housewife uses. Egg products containing Salmonella have been implicated in cases of food-caused illness in men.



Course in Laryngology and Bronchoesophagology

The Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the College

of Medicine of the University of Illinois at the Medical Center, Chicago, will conduct a postgraduate course in Laryngology and Bronchoesophagology from March 21 through April 2, 1966. This course is limited to fifteen physicians and will be under the direction of Paul H. Holinger, M.D. It will be held largely at the new Illinois Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, and will include visits to a number of Chicago hospitals.

Postgraduate Cardiology 1965

A 4-day program for the practicing physician will be offered by the Institute for Cardio Pulmonary Diseases of the Scripps Clinic and Research Foundation, December 7, 8, 9, and 10, 1965, in La Jolla, California.

Second Symposium on Coccidioidomycosis

There will be a Second Symposium on Coccidioidomycosis December 8, 9, 10, 1965, in Phoenix, Arizona. It will be sponsored and financed by the U.S. Public Health Service, C.D.C., American Thoracic Society, Arizona Tuberculosis and Health Assn., Inc., Arizona State Department of Health, Arizona Thoracic Society, and E. R. Squibb & Company.



PERSONAL AND NEWS ITEMS

Dr. Saliba Locates in Forrest City

Dr. Norman R. Saliba is a new associate at Forrest View Clinic in Forrest City. He is associated with Drs. Harold Cogburn, Charles Crawley, J. Neal Laney, and G. A. Sexton. Dr. Saliba is a 1958 graduate of the Medical College of Georgia and is a surgeon.

Dr. Schwander Named Consultant

Dr. Howard Schwander of Little Rock has been named chief medical consultant to the Ar-

kansas Rehabilitation Service.

Dr. Dungan Is Medical Director

Dr. William Thompson Dungan, a native of Little Rock, has been named medical director for the Arkansas Children's Hospital. Dr. Dungan is also the assistant professor of pediatrics at the University of Arkansas Medical Center and he will divide his time between teaching and serving as head of the Children's Hospital.

Dr. Dunaway Heads Commissions

Dr. Ed L. Dunaway of Conway was elected president of the National Association of State Racing Commissioners at a recent meeting. This high honor came during his 10th year as chairman of the Arkansas State Racing Commission. He is the first Arkansan ever to head the national organization.

Dr. Facundus Heads Hospital Staff

Dr. Bruce Facundus has been re-elected chief of staff of the Booneville City Hospital. Dr. Michael Simmons is serving as secretary. At the September staff meeting, Dr. Facundus spoke on "Current Concepts in Surgical Treatment of Gallbladder and Biliary Tract Disease."

Dr. Oates Named Health Officer

Dr. Gordon Oates of Little Rock has been named Pulaski County Health Officer. He replaces Dr. T. J. Raney who was killed in an automobile accident.

Dr. Northum to Piggott

Dr. Charles S. Northum has joined the staff of the Piggott Hospital in Piggott. He graduated from the University of Arkansas Medical School in 1962. He is a general practitioner.

Dr. Mitchell Is Speaker

Dr. George Mitchell of the Little Rock Diagnostic Clinic was the guest speaker at the monthly staff meeting of the Porter Rodgers Hospital in Searcy in August.

Dr. Rodgers Honored

Dr. and Mrs. Porter Rodgers, Jr., were honored at a reception given by Dr. and Mrs. Porter Rodgers, Sr., at the Searcy Country Club in August. Over 500 people attended the reception.

Dr. Alford Speaks

Dr. Dale Alford, Little Rock ophthalmologist, was the speaker at the Labor Day Picnic at Rector. Dr. Alford is a graduate of Rector High School.

Dr. Watson Visits Russia

Dr. Robert Watson of Little Rock, president of the Neurosurgical Society of America, returned in September from a three-week visit to Russia

with about twenty other neurosurgeons. They visited twenty Soviet medical institutes related to their specialty. The physicians were guests of the Ministry of Health.

Little Rock Physicians are School Board Candidates

Dr. J. A. Harrell, Jr., of Little Rock, a candidate for re-election to the Little Rock School Board, will be opposed by another member of the medical profession, Dr. Travis L. Wells.

AAGP Holds Seminar

The Arkansas Academy of General Practice held a 2-day postgraduate seminar at Hot Springs in August. The seminar was moderated by Dr. William Mashburn of Hot Springs, who also served as program chairman. Dr. D. B. Stough, III, of Hot Springs, was one of the speakers. Dr. A. J. Forestiere of Harrisburg is president of the Academy and Dr. T. D. Honeycutt of Little Rock is secretary.

Dr. Edwin F. Gray is Chairman of the Disaster Committee of Flying Physicians Assn.

Dr. Edwin F. Gray, 842 Donaghey Building, Little Rock, has been appointed chairman of the Disaster Committee of the Flying Physicians Association. Dr. Gray is trying to compile a roster of all physician pilots and physicians who are not pilots who are interested and willing to participate in the disaster assignments which may be assigned to the Flying Physicians Association. Dr. Gray asks that anyone interested get in touch with him at the above address.



O B I T U A R Y

Dr. Byron Zack Binns

Dr. Byron Z. Binns, age 52, died at his home in Eudora on August 12, 1965. Dr. Binns had spent twenty years of private practice in Eudora since going there in 1945, following his discharge from the U.S. Air Force. He received his M.D. degree from the University of Arkansas in 1938 and served his internship at San Bernardino County

Hospital, San Bernardino, California. He was an active member and deacon in the Baptist Church. He was also active in civic and school affairs as well as in medical circles. He served in various offices in the Southeast Arkansas Medical Society. He was a member of the Chamber of Commerce and had served as president of the Eudora Lions Club. He is survived by his widow, two sons and two daughters. He is also survived by a brother who is a member of the Arkansas Medical Society, Dr. Van C. Binns of Monticello.

Dr. Gilbert Leslie Kimball

Dr. Gilbert Kimball died at his Lake Greason home near Daisy on September 7th at the age of 59. He was born December 30, 1905, in Shell Knob, Missouri, and received his medical degree from Northwestern University in Chicago. He had practiced medicine in DeQueen since 1936. He was a member of the Baptist Church, Sevier County Medical Society, Arkansas Medical So-

ciety, American Medical Association, Masonic Lodge, was a Shriner, a veteran of World War II, and past president of the DeQueen Chamber of Commerce. In 1950 he was Grand Master of the Blue Lodge of Arkansas. He is survived by his widow, a daughter, and a son—Dr. Howard Kimball of Wilmington, Delaware.

Dr. Thomas J. Raney, Jr.

Dr. Thomas J. Raney of Little Rock was killed in an automobile accident in Hamburg on August 12, 1965. He was 53. Dr. Raney, a native of Newark, was reared in Mississippi County. He attended Hendrix College and the University of Arkansas Medical School. He was Pulaski County Health Officer and personal physician to Governor Faubus. He was on the board of the McRae Sanatorium and had served for several years as an adviser to the State on medical problems. Mrs. Raney and a son, Glenn, were also killed in the accident. Dr. Raney is survived by another son, Jeff, of Little Rock.



PROCEEDINGS OF SOCIETIES

Washington

At the September meeting of the Washington County Medical Society, Dr. J. Warren Murry, president, presented the insignia of promotion

from senior surgeon to medical director in the U.S. Public Health Service Reserve to Dr. Ruth Ellis Lesh. Dr. Lesh has held a reserve commission in the Public Health Service since early in World War II.



NEW MEMBERS

DR. ROBERT DAN MILLER, JR. is a new member of Phillips County Medical Society. A native of Helena, he received his preliminary education from Xavier University and Tennessee A & I University. He received his M.D. degree in 1964 from the Meharry Medical College in Nashville, Tennessee. He completed his internship at Northeastern Hospital in Philadelphia, Pennsylvania. Dr. Miller's office address is 112 Walnut Street in Helena, Arkansas. He is a general practitioner.

A new member of Pulaski County Medical Society is DR. EATON WESLEY BENNETT. He was born at Troy, Tennessee, and he received his preliminary education from the University of Tennessee. He was graduated from the University of Tennessee School of Medicine in 1931 and he interned at Knoxville General Hospital in Knoxville, Tennessee. He is a retired Colonel in the U. S. Army and his specialty is psychiatry. Dr. Bennett is with the Arkansas State Hospital in Little Rock.

Pulaski County Medical Society announces that DR. ERNEST H. HARPER has been added to its roster of members. He is a native of Little Rock and he received his pre-med from the University of Arkansas at Fayetteville. He then enrolled at the University of Arkansas Medical Center and was graduated from there with a M.D. degree in 1960. He interned at the University of Arkansas Medical Center. Dr. Harper's specialty is internal medicine and his office is at Pike Plaza Center in North Little Rock, Arkansas.

DR. JERRY M. YOUNG is a new member of Pulaski County Medical Society. He was born at Stuttgart, Arkansas, and received his prelimi-

nary education from the University of Arkansas and State Teachers College. He received his M.D. degree in 1959 from the University of Arkansas Medical School and he interned at the Arkansas Baptist Hospital in Little Rock. He served in the U.S. Army from 1962-1963. Dr. Young's specialty is urology and his office is at Pike Plaza Center in North Little Rock, Arkansas.

DR. MARY ELIZABETH RICHARDSON is a new member of Pulaski County Medical Society. She is a native of Los Angeles, California, and she received her preliminary education from the University of California. She was graduated from the Women's Medical College of Pennsylvania in 1956 and she interned at Providence Hospital in Seattle, Washington. Dr. Richardson's specialty is pathology and she is Assistant Professor of the Department of Pathology at the University of Arkansas Medical Center in Little Rock.

Pulaski County Medical Society announces that DR. W. RAY JOUETT is a new member. A native of Livingston, Tennessee, he received his pre-med from Tennessee Technical College in Cookeville, Tennessee. In 1955 he received his M.D. degree from the University of Tennessee Medical School and he interned at City Memorial Hospital in Winston-Salem, North Carolina. Dr. Jouett's office address is 1026 Donaghey Building in Little Rock. His specialty is neurological surgery.

A new member of Pulaski County Medical Society is DR. WILLIAM TURNER HARRIS. He was born at Benton, Arkansas, and received his preliminary education from Arkansas State Teachers College at Conway. He was graduated from the University of Arkansas School of Medicine in 1961 and he interned at the University of Arkansas Medical Center. Dr. Harris is a radiologist and his office address is 500 South University in Little Rock.

DR. GILBERT AUSTIN BUCHANAN has been added to the roster of members of the Pulaski County Medical Society. He is a native of Prescott, Arkansas, and attended the University of Arkansas at Fayetteville before entering the University of Arkansas Medical School at

Little Rock. He received his M.D. degree in 1959 from the University of Arkansas Medical School and he interned at the University of Arkansas Medical Center. Dr. Buchanan's specialty is pediatrics and pediatric allergy and his office address is 500 South University, Little Rock.

DR. HAROLD H. CHAKALES is a new member of Pulaski County Medical Society. A native of Brooklyn, New York, he received his pre-med from Wake Forrest College. He received his M.D. degree from Bowman Gray School of Medicine in North Carolina in 1958 and he interned at Jefferson Davis Hospital in Houston, Texas. Dr. Chakales is an orthopedic surgeon and he is an instructor in the Division of orthopedic surgery at the University of Arkansas Medical Center.

DR. CHARLES RICHARD FIELDER is a new member of Pulaski County Medical Society. He was born at Helena, Arkansas and received his pre-med from the University of Tennessee. In 1954 he received his M.D. degree from the University of Arkansas Medical Center and he completed his internship at Parkland Hospital in Dallas, Texas. Dr. Fielder's specialty is general and thoracic surgery and he is presently an instructor in surgery at the University of Arkansas Medical Center.

Miller County Medical Society announces that DR. NORRIS C. KNIGHT, JR. is a new member. He is a native of Clarksdale, Mississippi, and he received his preliminary education from Millsaps College and the University of Mississippi. He was graduated from the University of Mississippi School of Medicine in 1959 and he interned at the University of Mississippi Medical Center in Jackson, Mississippi. Dr. Knight's specialty is orthopedic surgery and his office address is 619 Main Street in Texarkana, Arkansas.

A new member of Miller County Medical Society is DR. JOHN McLAURIN DODGE. He was born at Ruston, Louisiana, and received his pre-medical education from Baylor University. He received his M.D. degree from Baylor University College of Medicine in 1957 and he interned at Parkland Memorial Hospital in Dallas, Texas. Dr. Dodge's office address is 619 Main

Street in Texarkana, Arkansas. His specialty is obstetrics and gynecology.



BOOK REVIEWS

OBSTETRICS, Thirteenth Edition, from the Original Text of Joseph B. De Lee, M.D., by J. P. Greenhill, M.D., F.A.C.S., F.I.C.S. (Hon.), F.A.C.O.G., Senior Attending Obstetrician and Gynecologist, The Michael Reese Hospital, Obstetrician and Gynecologist, Associate Staff, The Chicago Lying-in Hospital, Attending Gynecologist, Cook County Hospital, Professor of Gynecology, Cook County Graduate School of Medicine, illustrated, pp. 1246, published by W. B. Saunders Company, Philadelphia and London, 1965.

This outstanding textbook of obstetrics is perhaps one of the most widely used which is published in the English language. It is authoritative, comprehensive and complete. The text is well written. There are numerous illustrations and charts. The authors of the various sections are of knowledgeable in their field. The book contains excellent bibliographic references.

This book is heartily recommended to medical students, general physicians and house staff. AK

ELECTROCARDIOGRAPHY AND VECTORCARDIOGRAPHY by Lawrence E. Lamb, M.D., Professor of Internal Medicine, Chief, Medical Sciences Division, USAF School of Aerospace Medicine, Brooks Air Force Base, Texas, pp. 609, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1965.

This textbook is complete, well written and filled with interesting illustrations. It has a list of 286 references appended at the end of the book rather than with each chapter. A good deal of attention is devoted to Vectorcardiography. As is often the case, it has a catch-all chapter on miscellaneous problems which include the effects of vagal stimulation, electrolyte changes, digitalis, etc. This is unquestionably a first-rate book. The reviewer's only question about it is whether or not there is a real need for another text in this field already burdened with innumerable texts and references. This book is recommended as being an excellent text on electrocardiography. AK

THORACIC SURGERY, Volume II, prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army, pp. 615, illustrated, Washington, D.C., 1965.

The books published under the auspices of the Medical Department of the Office of the Surgeon General continue to be most interesting and most valuable reference volumes. This latest in the series on Thoracic Surgery in some ways is the most interesting in the series. Perhaps this is the result of the widespread dissemination of knowledge concerning thoracic surgery that resulted from the treatment of World War II wounds. As usual, the contributors are outstanding individuals. This text probably more than any of the others to date will be valuable as a teaching text in civilian practice as well as being a book which is of value to the military service. This is a most interesting work and is recommended because of its historic interest and its current teaching value. AK



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RHEUMATOID LUNG DISEASE

Among a large series of cases of rheumatoid arthritis, nine patients had diffuse pulmonary fibrosis. Pleuritis was the most common pulmonary lesion and dyspnea on exertion was an early clinical feature. Clubbing of the fingers and subcutaneous nodules were frequent, too.

Rheumatoid arthritis is a systemic disease characterized by pain and disability in peripheral joints. The disease may affect any organ but exhibits a strong preference for tissues abundant in mucopolysaccharide such as the joints and other serous surfaces, the eye, and the arteries.

The most typical histologic lesion is the necrobiotic granuloma. This histologic lesion is not completely specific, but is usually considered diagnostic of rheumatoid arthritis if the clinical manifestations of the illness are present.

An association observed between rheumatoid arthritis and lung disease has given rise to the term rheumatoid lung disease, but there is no well-defined concept of the relationship. The present study was undertaken to clarify this relationship.

NINE CASES STUDIED

Hospital records were reviewed of 702 patients diagnosed as having rheumatoid arthritis between 1950 and 1963 at the University of Arkansas Medical Center and Little Rock Consolidated Veterans Administration Hospital.

Patients were included in the study only if the roentgenogram showed moderate or severe diffuse pulmonary fibrosis. Of the 702 rheumatoid arthritis patients, diffuse fibrosis appeared in eight. A case from another hospital was added, to make nine in all. Subcutaneous nodules occurred in six of the patients, usually about the elbows and wrists.

Arthritis usually preceded the development of

the pulmonary lesion. The interval between onset of arthritis and onset of pulmonary lesions ranged from 2 to 10 years in five patients. As for the other patients, respiratory symptoms were not present in two at the time chest abnormalities were discovered, and one patient developed pulmonary symptoms eight years prior to the onset of arthritis. There was no correlation between the severity of arthritis and the severity of pulmonary fibrosis. Four of the patients had severe crippling deformity of peripheral joints, two had moderate deformity, and three had mild deformities limited to the joints of the hands and wrists.

On the basis of chest roentgenograms, the fibrotic lesions in the lungs remained constant or increased in severity in all patients. There was no evidence that the infiltrative lesions ever regressed or that therapy altered the course of the pulmonary disease.

Results of pulmonary function studies were typical of cases of diffuse pulmonary fibrosis. The vital capacity was reduced; expiratory flow rates were normal.

The most common pulmonary lesion is pleuritis. It may occur without symptoms or be accompanied by pain in the chest. Although it often passes unnoticed, pleural effusion is frequently associated with pleuritis and may be detected if roentgenographic examination of the chest is done at the proper time. The episodes of pleuritis tend to be mild and transient, although they may be severe, but in either event the result is fibrosis. Postmortem examinations often reveal dense pleural adhesions consisting of fibrous tissue without specific changes. The pleura, however, may contain typical rheumatoid granulomas with a central zone of fibrinoid necrosis surrounded by a fibrous layer of palisading connective-tissue cells and scattered mononuclear cells.

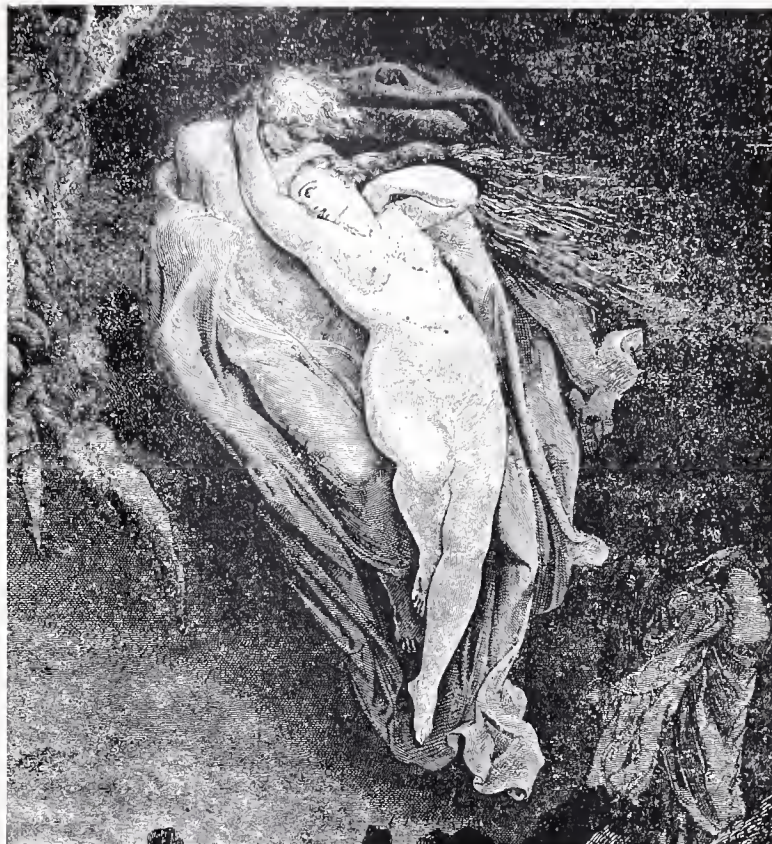
HISTOLOGIC CHANGES

Interstitial pneumonitis tends to appear dif-

C. DOWELL PATTERSON, M.D.; WILLIAM E. HARVILLE, M.D.; and JOHN A. PIERCE, M.D.; *Annals of Internal Medicine*, April, 1965.

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fusely throughout the lung but may occur only in localized areas about the bronchi and blood vessels. The initial histologic event is dense lymphocytic infiltration with edema and thickening of the interalveolar septa. Lymphocytic foci resembling germinal follicles may be prominent, and the alveolar epithelium may be cuboidal. There is usually no intraalveolar exudate.

The clinical features in pulmonary fibrosis include the early appearance of dyspnea on exertion. Recurrent bronchitis with cough and sputum production and clubbing of the fingers are both common. Subcutaneous nodules are especially frequent, fine crackling rales are often heard, and cor pulmonale sometimes develops. Any degree of joint disability may occur. Total lung capacity is decreased because diffuse thickening of the alveolar walls alters the elastic properties of the lung. The resistance to expiratory air flow is usually normal but may be increased if the patient develops bronchitis or honeycomb lung. Otherwise, the physiological features are those of any sort of impaired diffusion or defective gas transfer.

Two types of pulmonary fibrosis occur in patients with rheumatoid disease—diffusely nodular and coarsely nodular. Necrobiotic granulomas are more common in coarsely nodular fibrosis but may occur in diffuse fibrosis as well. Not only do histologically typical rheumatoid granulomas appear deep in the lung parenchyma, but lymphocytic foci with dividing lymphoblasts occur which

simulate germinal follicles. These findings are helpful in the differentiation of rheumatoid disease from other types of diffuse pulmonary fibrosis.

The central issue is whether the rheumatoid process results in lung disease in the absence of other pathogenic stimuli or the pathologic changes occur because the lung tissue is more reactive than usual.

The clinical course of patients with coarsely nodular pulmonary fibrosis is determined by the extent of the involved lung tissue. With extensive involvement the illness may be fatal, but in general it tends to be clinically less severe than diffuse fibrosis.

Rheumatoid lung disease encompasses a wide range of pathologic alterations, varying from insignificant fibrous pleural adhesions to progressive and fatal diffuse fibrosis. The high frequency of lung disease in rheumatoid patients suggests that the rheumatoid process is essential or at least important to its cause. But the lack of correlation between the intensity of the arthritis and the severity of the lung disease suggests that the rheumatoid process alone is not responsible for the lung involvement.

The exceptional reactivity of the lung tissue in patients with rheumatoid disease makes it seem reasonable to propose that ordinary pathogenic stimuli, particularly viral and bacterial infections, may provoke an intense response and, ultimately, severe lung pathology in the rheumatoid patient.



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December, 1965

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(1) Frykman, H.M.: *Minn. Med.*, Vol. 38, Jan. 1955. (2) Poth, E.J.: *The J.A.M.A.*, Vol. 163, No. 15, April 13, 1957. (3) McGivney, J.: *Texas State Jour. of Med.*, Vol. 51, No. 1, Jan. 1955. (4) Stern, F. H.: *Jour. of The Amer. Ger. Soc.*, Vol. 11, No. 3, Mar. 1963. (5) Weekes, D. J.: *N.Y. State Jour. of Med.*, Vol. 58, No. 16, Aug. 1958. (6) Abbott, P.L.: *Jour. of Oral Surg., Anes. & Hosp. Dental Serv.*, Vol. 19, July 1961. (7) Weekes, D. J.: *E.E.N.T. Digest*, Vol. 25, No. 12, Dec. 1963.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Carbon Monoxide Poisoning

Edwin R. Hughes, M.D.* and D. A. Fisher, M.D.**

Dr. Hughes:

This is a rather unusual CPC. It is a case of sudden, unexpected, unexplained death. There is no history, physical examination and no laboratory tests. I don't know how Dr. Fisher is going to make a story out of this but I think he will be able to because I think he has all of the qualifications for becoming chairman of a department. One definition of this is a person who can take a statement someone else has made and turn it into an hour lecture. (laughter).

Dr. Fisher:

I think Dr. Hughes is perhaps right. Reading it over, you get the impression that you have a diagnosis right away, and perhaps you do except that some of these unusual diagnoses that we see on television and at CPC's might of course turn out to be applicable here. Taking it as it is, however, with little history, and just going over the protocol and reviewing the possibilities, it appears reasonably straightforward. This is a fifteen year old Negro female who went for a ride with other members of her family. She stopped at a commercial establishment about 7:00 p.m. for a hamburger. That's not usually in a history and so it must have some significance. Subsequently she became nauseated, complained of a stomach ache, headache and began to vomit. The implication in the protocol is that it is due to the hamburger. Five of her six companions became ill simultaneously and they presented at the emergency room at about 10:40 the same day, some three hours after having eaten whatever it was—hamburger plus something. Again the implication that you get is that whatever happened, happened suddenly to six of seven people and was severe enough that one of them died. The patient obviously was most severely affected.

Within a few minutes after her arrival it was noted that she had no vital signs. She had cardiac

massage, was intubated, and on entrance of the tube into the trachea a large amount of vomitus flowed out into the oropharynx. She had some CNS depression in addition to her lack of vital signs and obvious prostration. The resuscitation was of no avail and she was pronounced dead. The other affected members of the family were 9, 11, 12, 40, and 43 years of age. They recovered completely. It was learned that some members of the family had eaten cherries picked from a tree the afternoon before the present illness, so obviously somebody was looking pretty hard for a source of poison to account for these sudden acute illnesses. It was not known whether the cherry tree had been sprayed.

The significant things, I think, are that five of six companions plus the patient, a total of six of seven people became acutely ill within a period of three and one-half hours, and probably much more promptly than that. They were severely ill, particularly the child who died. The major manifestations were GI complaints and headaches which were completely non-specific but strongly suggest poisoning or toxin exposure of some sort. The rapid onset suggests the same thing. The possibility of simultaneous, communicable disease to account for this in all of these people pretty much simultaneously is extremely unlikely. The incubation periods usually vary a great deal more than this from one patient to another.

The protocol says that we have an onset within three and one-half hours after taking a drive. This also suggests that they might have contacted something in the car but this, too, seems unlikely with the history we have. Carbon monoxide poisoning certainly could have poisoned six of these seven people but if that were the case, and this patient was that severely ill from carbon monoxide, she should have had a history of some cyanosis, dyspnea and the usually visible cherry-red mucous membranes that go along with carbon monoxide poisoning.

*4301 West Markham, Little Rock, Arkansas.

**VA Hospital, Boston, Massachusetts.

Proceedings of CPC given on December 10 at University of Arkansas Medical Center.

They could have picked up some agricultural insecticide in the air while driving, but this presumably was in the evening and insecticide probably would not have been present that late had they been spraying that day. Moreover, we don't know the time of the year. Some sort of food poisoning, therefore, seems much more likely. The cherries only part of the individuals had ingested from the history we have; it seems unlikely that they could get enough toxin that all of them would be involved from that source, so I think that the cherries are a "red herring" at this point.

The characteristics of the illness insofar as we know them might be helpful. We have, as we pointed out, gastrointestinal complaints, a non-specific headache and, more particularly, prostration which was severe enough to produce death rather promptly. We can, with these in mind, go over the specific possibilities for poisoning, food poisoning more particularly, that might produce this kind of acute prostration with these non-specific GI and CNS manifestations. The possibilities, it seems would include contamination of whatever food they had with insecticide, and there are numerous insecticides that could be involved; lead arsenates and organic phosphates, I suppose are possibilities. Household insecticides might have been put on in place of baking powder or flour, but probably not if it was the hamburger that produced the intoxication. Preservatives or fungicides that are put in food might have been involved but again it is a little hard to convince oneself that there was sufficient contamination to produce this much disease in six of seven people. These, however, would include formaldehyde and copper sulphate. The silverware might have been cleaned with some cyanide polish but usually utensils are not silver and are not polished in restaurants; they just run it through the dishwasher. That seems unlikely, therefore. Flesh of cattle and fowl may be contaminated with arsenic, if the animals have been eating grass and other vegetables that have been contaminated with these insecticides so that is a possibility as well.

We have, then, to consider lead, arsenic, some of the chlorinated insecticides such as DDT, chlordane and toxiphane, cyanide and organic phosphates. Lead usually does not produce acute toxicity. It can, however, by, inhalation if batteries are being burned in the vicinity. You see nonspecific symptoms; nausea, vomiting, abdominal pain, occasionally hemolytic crisis, and death

from shock can occur in a period of from two to three days. It is extremely unusual with lead to get death as promptly as in this child. Usually a single ingestion of goodly amounts of lead produces no acute signs or symptoms.

Arsenic and other metallic poisons, of course, are high on the list. They will all give you vomiting, diarrhea, and abdominal pain. With mercury, the diarrhea is often bloody and you can get profound shock reasonably promptly. Albuminuria and hematuria occur but we don't know anything about the urine findings in this girl. The profound shock, though, that often occurs with acute mercury intoxication might have caused the prostration this child had. With acute arsenic poisoning you get acute severe toxicity, often within a half an hour, especially if it is taken without other food. Taken with food the symptoms might be delayed for six to twelve hours. Arsenic toxicity can occur reasonably acutely and the symptoms that most often are noted are constriction of the throat with dysphagia, gastric pain and then projectile vomiting, sometimes watery and bloody diarrhea and hematuria, all of which lead to dehydration and eventually shock. Cardiovascular failure may occur with respiratory failure but not usually within so short a time as this girl manifested her prostration.

The chlorinated insecticides (DDT, chlordane and toxiphane) generally produce CNS stimulation, tremors, ataxia and convulsions rather than acute prostration and GI disturbance. CNS depression can go onto respiratory failure, but not usually to cardiovascular failure. Cyanide produces giddiness, headache, palpitations, cyanosis and CNS manifestations which go on to unconsciousness. With severe poisoning death may occur very promptly, within two or three hours, but not usually with predominately GI complaints. The organic phosphates produce peripheral inhibition of cholinesterase. Therefore, you usually have rapid signs and symptoms, usually within thirty minutes, and these, of course, include increased secretion, nausea, vomiting, myosis, pulmonary edema caused by the parasympathomimetic kind of CNS manifestations, muscular weakness, eventually paralysis, and convulsions.

So of these several acute chemical poison possibilities, it would seem that heavy metal could explain what we have and of the heavy metals, probably mercury, if we had to make a choice. It can and often does produce profound shock

relatively promptly. But again, not usually in two to three hours. To me, therefore, it seems more likely that we are dealing with some bacterial contamination of food and this comes in several varieties. Botulism, which you are aware of, salmonella and shigella which you can pick up from a variety of sources and staphylococcal or streptococcal food poisoning. Botulism, you will recall, is an anerobic organism which is usually found in preserved foods after preservation and before eating. The organism produces a heat labile exotoxin which is destroyed in food that has been heated to about 80 degrees centigrade for ten or fifteen minutes. The hamburger is not likely to contain botulism toxin if it had been cooked relatively recently. I don't know about the restaurant in which they ate, but presumably the meat was cooked a reasonably short time before the patients ate it. You do, however, with botulism toxicity get nausea and vomiting and abdominal pain, the usual non-specific symptoms that don't help very much, and then eventually some curare like action on the motor end plate, e.g., anoxeria, weakness, dizziness, diplopia, ptosis, strabismus and difficulty breathing, swallowing and talking. Death occurs usually within one to eight days. Again, death does not usually occur as promptly as it occurred in this child.

Salmonella and shigella do not produce exotoxins which account for the symptoms; there is a direct infection of the gastrointestinal tract and perhaps septicemia. With salmonella infection you either get a septic typhoid-like illness or you get an acute gastroenteritis. It appears from our protocol that we may be dealing with a gastrointestinal infection. The incubation period may be as short as a few hours but it is more likely to be several hours. Symptoms have been delayed as long as 12 days. Death in a period of two or three hours with a salmonella infection doesn't seem very likely. Salmonella will produce headache, nausea, vomiting and abdominal pain, like most of these other things we have been discussing, as well as diarrhea, drowsiness, and meningismus, but I think the incubation period for an acute infection would make it unlikely in this child. The same goes for shigella.

This leaves us then with staphylococcal or streptococcal food poisoning. These organisms produce heat stable endotoxins which have a very rapid onset of action, usually one to six hours. They produce nausea, vomiting, retching, severe abdominal pain, and sometimes diarrhea. The

outstanding characteristics of severe toxicity with these toxins is acute prostration, sweating, hypotension and shock. Usually the symptoms are relatively short-lived with an early onset. The patients either die within 12 to 24 hours or they survive without residual. The other thing most characteristic of staphylococcal and streptococcal food poisoning is that such poisoning is suspected when a large group of people become ill at about the same time after having ingested some food which had been contaminated with staphylococcus or streptococcus. This fits our situation here.

In review, then, we have a fifteen year old Negro female who, with a group of six companions, became ill pretty much simultaneously. They all presented similar gastrointestinal manifestations suggesting that they ingested some kind of toxin with a rapid onset of action. One was dead within three and a half or four hours and the others survived and got over their symptoms relatively promptly. The characteristics of the illness in the little girl who died were rapid prostration and death, all of which are characteristic of the kinds of manifestations observed with staphylococcal or streptococcal food poisoning. I would think that this would be by far the most likely and fitting diagnosis. Treatment, of course, is not very effective; saline cathartics if they are seen very early after the symptoms, fluid therapy, appropriate treatment to combat shock, including plasma expanders and/or hypertensive agents, oxygen therapy as necessary, intubation as was performed, artificial respiration and whatever else is necessary to support life until symptoms abate.

It is always possible, and likely in a CPC, that some more subtle diagnosis may be the correct one. Our patient might have ruptured a viscus, but we couldn't pick this out from our protocol. With that kind of exclusion, it seems most likely to me that she died of poisoning with staphylococcal or streptococcal food poisoning.

Dr. Hughes:

At autopsy this girl appeared to be healthy externally. There were no signs of trauma about the head, abdomen or chest. There were two needle puncture sites; one over heart and one over the femoral triangle area which were easily explained. On removing the contents of the thoracic cavity the trachea was found to be practically occluded with partially digested food material and gastric juices. This aspirated material extended completely out into both major bronchi

and could be identified on the cut section of lung in very small bronchioles. She had aspirated a great deal of material and this was undoubtedly her terminal event. There were petechiae scattered over the thymus and the visceral pleura and over the visceral pericardium. The stomach and GI tract were not remarkable grossly. I mention this because with the heavy metal poisonings that Dr. Fisher was talking about we usually always see ulcerations of the stomach and the small bowel.

One of the most striking things about the autopsy was the cut section of the lung; there was extreme vascular engorgement which could be due to the aspiration plus the anoxia. The musculature over the thorax was deep cherry red in color. (On cutting the fixed brain it was thought that there might be some cerebral edema). The brain of the patient retained a nice cherry red color even after 10 days of formalin fixation. The primary cause of death in this girl was carbon monoxide poisoning. She had a blood carbon monoxide hemoglobin saturation of 58 percent. Her terminal event was that of aspiration and in her depressed state she couldn't clear the secretions sufficiently to stay alive. Microscopic examination of the lung showed small bronchi which were completely occluded with particulate matter in the center of which you can identify both hamburger and lettuce. The extremely severe congestion of the pulmonary capillaries reflects the anoxia this patient had. Under high power, the hamburger could be seen as striated muscle with the nuclei still in it and the vegetable cells were nicely demonstrated within the bronchus. There is considerable sloughing of the bronchial mucosa, probably because of digestion with the gastric juices.

Claude Bernard in 1857, was the first one to discover that carbon monoxide had an affinity for hemoglobin some 300 times that of oxygen, and documented at that time many of the toxicities of this gas. Probably today this is the most common cause of chemical death in the United States. This is sort of an all or none disease. The patient either dies or gets well. If he dies, he dies rather rapidly, within a couple of hours, as this patient did, although death may occur more rapidly than this. If the patient is removed to an atmosphere that is free of carbon monoxide before he expires, he will often improve rapidly. The carbon monoxyhemoglobin has a half-life of about three hours, that is, about half of the

carbon monoxyhemoglobin will clear in three hours. If he starts out with a blood level of 50 percent it will be down to 12.5 percent by six hours; recovery is usually complete as in the other members of this family. It probably requires a level of 20 percent of 30 percent or so of carbon monoxyhemoglobin before you have symptoms. Good heavy smokers, using a couple of packs or three a day, carry around blood levels of eight to ten percent carbon monoxyhemoglobin. They may not be symptomatic because of their tolerance; people working in tunnels in New York City and places where exhaust fumes are high get levels of above 5 to 10 percent frequently over long periods of time without apparent clinical disease. However, levels above 30 percent saturation will always produce clinical symptoms. These are primarily CNS symptoms which Dr. Fisher has already enumerated for us. Above 50 percent saturation, coma usually ensues. Above 70 percent saturation death occurs rapidly; within three or four minutes.

What does this mean in terms of the level of carbon monoxide in the atmosphere? If you breathe an atmosphere containing 0.2 percent carbon monoxide for one hour, this will probably always be fatal. It has been estimated, although not proven in man, that taking six or eight deep breaths of 2 percent carbon monoxide would be fatal. This is an extremely toxic inhalant. I think at the autopsy table the thing that made the prosecutor, Dr. Leo Davenport, order the blood carbon monoxide analysis was the cherry pink color of the muscles and the viscera. This is not pathognomonic of carbon monoxide poisoning, but we always order carbon monoxide studies when this is present. Cyanide poisoning can give the same reddish color, although Dr. Davenport claims his spectroscopic vision can differentiate the carbon monoxide from the cyanide color. Sometimes the skin is just red in a dead person, presumably in those people who expire with peripheral vasodilatation in good oxygenation, and doesn't mean anything. The cyanide studies in this patient were negative.

I think we could spend a few minutes, discussing the mechanism of death in carbon monoxide inhalation and intoxication. It would seem rather obvious to attribute this to hypoxia. After all, if carbon monoxide has an affinity for hemoglobin some 300 times that of oxygen, you can't have oxygen transported to the tissue. We all know that complete anoxemia for a few minutes

—four or five minutes—will cause death, however, the pathology of carbon monoxide poisoning is not so simple. The pathology of carbon monoxide poisoning, particularly if the patient lives more than 24-48 hours after acute poisoning, is not that of anoxia. The characteristic lesions in the brain, when the patient lives long enough for them to develop, are very symmetrical lesions primarily in the basal ganglia. This is also seen in experimental anoxia, and anoxia due to strangling or other causes in humans. However, in carbon monoxide poisoning there seems to be another lesion which is not explained on the basis of anoxia alone, and that is a diffuse leukoencephalopathy or a diffuse patchy demyelination throughout the white matter. The fact that you cannot produce these lesions with hypoxia suggests that another factor exists in the pathogenesis of the lesions of poisoning. The white matter of the brain only requires about 20 percent as much oxygen for survival as does the gray matter, and the gray matter is almost completely spared in carbon monoxide poisoning, except for those cells and neurons in the basal ganglia. These observations suggest that carbon monoxyl-hemoglobin or some carbon monoxide complex is histotoxic in itself.

Warburg showed many years ago that carbon monoxide does inhibit respiration by tissues and inhibits oxygen uptake; it does this by binding the cytochrome iron, very similar to the way that cyanide causes histotoxic poisoning. However, you have to use almost 100 percent carbon monoxide in the incubation atmosphere in vitro to cause complete inhibition of respiration and it would appear that this is never attained in a living person; at least the hemoglobin never becomes 100 percent saturated. The content of carbon monoxide in exhaust gasses from automobiles is from 3 to 7 percent and it is estimated that if the doors are closed in a single car garage a toxic concentration of carbon monoxide will be achieved within five minutes.

This car had a leaky muffler and probably was parked, although we don't have this history, for some period of time with the motor running, waiting for the hamburger. During the time that the people were coming to Little Rock, enroute to the hospital, there was probably continuing exposure to the carbon monoxide, which attributed to the patient's eventual demise.

The interesting thing about exhaust gasses and illuminating gasses and so forth, is that there

seems to be another toxic factor other than carbon monoxide, which has not been identified. One of the most dramatic demonstrations of this, I think, is in growing chick neuroblasts in tissue cultures. They will grow quite well in an atmosphere of about 70 percent carbon monoxide and 30 percent oxygen, however, if you supply an atmosphere that contains only 0.1 percent of illuminating gas or coal gas, the chick neuroblasts will not grow. Illuminating gas only has about 10 percent carbon monoxide; it also contains methane, benzene, ethylene and some carbon dioxide. I think that studies such as this do suggest that inhalation and toxicity of exhaust gasses is not purely one of carbon monoxide intoxication.

The exact mechanism of the leukoencephalopathy of the carbon monoxide poisoning is not known but it would appear that this is best explained on the basis of cerebral edema. It is hard to document cerebral edema in all reported cases of carbon monoxide poisoning at autopsy. The characteristic finding, however, later in these brains, if the patient survives for several weeks, is a rather diffuse fibrosis in the Virchow-Robin spaces around the blood vessel. This diffuse fibrosis can be reproduced by various experimental methods having in common the production of cerebral edema. Apparently the serum exudes into these spaces and there follows a fibrosis and gliosis around this. The spongy demyelination of the white matter also occurs in cerebral edema. In experimental cerebral edema, you do have relative sparing of the gray matter, thus it would appear that all the cerebral manifestations and neurological symptoms of carbon monoxide poisoning may not be explained entirely on the basis of hypoxia, but are also accompanied by considerable cerebral edema which may be due to a histotoxic effect of carbon monoxide itself upon the endothelium of the blood vessel.

Question:

What time of year did this occur?

Dr. Davenport:

This happened on May 30, 1964 during the last severe cold spell of the Spring. The patients had apparently kept the windows of the car closed most of the time.

Question:

Was the girl who died sitting near a window?

Dr. Davenport:

No, she was sitting in the middle in the front seat. The other family members were perhaps

spared because they apparently had to stop the car several times on the way to the Medical Center because they were ill. There was also a history that the children would get out of the car on these occasions and would run around acting very peculiarly. They would partially recover and get back in the car.

Question:

Was the exhaust system of the car defective?

Dr. Davenport:

It was later said that the state police had checked the car and could find no leak in the

exhaust system. The stepfather had, however, recently installed a new muffler.

Question:

Was the cherry red color visible in the emergency room?

Dr. Davenport:

Probably. At least it was obvious at the autopsy table. This is not always a reliable sign, however, since it may not be obvious before death is imminent, particularly in Negroes as this young female was.



Contaminated and Natural Lead Environment of Man

C. C. Patterson (Division of Geological Sciences,
California Institute of Technology, Pasadena)
Arch Environ Health 11:344 (Sept.) 1965

There are definite indications that residents of the United States today are undergoing severe chronic lead insult. The average American ingests some 400 μg of lead per day in food, air, and water, a process which has been viewed with complacency for decades. Geochemical relationships and material balance considerations show that this ingestion of about 20 tons of lead per year on a national basis is grossly excessive compared to natural conditions. It probably originates from the one million tons of lead dispersed yearly in such forms as lead alkyls, lead arsenates, and food can solder, and from the many millions of tons of lead accumulated throughout past decades and stored as paints, alloys, piping, glazes, and spent ammunition. Existing rates of lead absorption are about 30 times higher than inferred natural rates,

yielding body burdens of about 200 mg Pb/70 kg body, and blood concentrations of 0.25 ppm Pb, values of which are about 100 times above the inferred natural levels of 2 mg Pb/70 Kg body and 0.0025 ppm Pb in the blood. Existing blood lead concentrations have for decades been regarded as natural, although it is well known that the average value lies only slightly below threshold levels for classical lead poisoning which are 0.5 to 0.8 ppm Pb. It appears that the following activities deserve serious consideration and support: defining natural and toxic lead levels with greater care than in the past; investigating the deleterious effects of severe chronic lead insult; investigating the dispersion of industrial lead into food chains; elimination of some of the most serious sources of lead pollution such as lead alkyls, insecticides, food can solder, water service pipes, kitchenware glazes, and paints; and a re-evaluation by persons in positions of responsibility in the field of public health of their role in this matter.

Anxiety — Reappraisal of a Concept

Herbert M. Perr, M.D.*

In exasperated frustration at understanding the Russian mind, Churchill once said, "It is a riddle wrapped in a mystery inside an enigma." As I reviewed much material on this subject and the enormous disagreements about so many of its aspects, I felt a resonating echo Churchill's words. It seemed as if the more we attempt to clarify the topic of anxiety, the more we compound our personal anxiety. Cattell put the matter in this delightful fashion: The only firm law at the verbal debate level is, that if there are N people around the table, there will be $K \times N$ number of definitions of anxiety, K being some large quantity connected with the amount of alcohol consumed."

We here today may be more fortunate since

1. we are not around a table
2. there is little evidence, at least overt, of such salubrious lubrication, and
3. this speaker will be doing the talking!

One problem is immediately apparent in that the term, "anxiety" means so many different things to different people. There are the psychoanalysts of various persuasions, psychiatrists, physicians, physiologists, biologists, ethologists, psychologists, sociologists, philosophers, and theologians. I'm sure I have left out somebody, for which I am sorry. And above all we must not leave out the most crucial individual, the human sufferer who experiences this state and lives with any or many of its varieties. It is no wonder that there is such a babel, and no wonder that communication has proven so difficult!

Another problem arises when the part is taken for the whole, and a particular facet is believed to typify the phenomenon. And so one can focus upon the historical, ontogenetic, etiological, functional, existential, physiological, psychological, behavioral, intrapsychic, interpersonal, and theoretical facets . . . need I go further, these are formidable parameters to consider!

Anxiety has been alluded to and defined as an-affect, an ego state, transformed in energy, a dynamism, a drive state, a disorganizer of effective behaviour, a fear triggered by cues or symbols for some remote and uncertain danger rather than physically or immediately present. It is accepted

by most psychoanalysts as the central problem in neurosis; thought of by many as a fundamental category of human existence; considered as a specific signal which arises when there is an underlying need, drive or tension state, strain or disequilibrium. To some it must be defined in terms of behaviour, to others it is an introspective experience. It has further been partitioned. By Freud² into objective, moral, and neurotic types; by Horney³ into basic, healthy, central inner; and into conscious, unconscious, and existential. We recognize that none of the above statements excludes the coexistence of any other.

So it is that the same word is being used to refer to different things, and to different facets of the same thing. And unfortunately, other words are used to refer to some aspects of anxiety. Some who use the term "anxiety" have meant to encompass within it all that I have mentioned, while others refer only to specific aspects of the above. And we are not yet at that stage of scientific precision in definition enjoyed more in the physical sciences, so that we must try to make ourselves understood by encouraging consensus each step of the way.

We have inherited so many speculations in the past 100 years, some of which somehow achieve the dignity of fact. One goal must therefore be to extricate history from historical fiction, fact from semantic confusion. Nothing that I will present in this paper is offered as original. What I hope to achieve is open questioning about the concept of anxiety, and perhaps suggest different perspectives by which to assemble a theory on anxiety. I am not presuming to offer a comprehensive theory, unitary concepts of anxiety have been presented by Harold Kelman,⁵ Karl Menninger⁸ and others.^{7,12,13}

To start with a definition, I would like to suggest that of John Reid. It is "a complex, multi-dimensional, response of an organism at various levels of integration or states of disintegration; biological neurophysiological, behavioural, and interpersonal."¹² It has 1. an affective component, 2. a cognitive side, and 3. conative implications. Anxiety is experienced, it has body concomi-

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tants, and reflects itself in behaviour. Implied in this definition is that it is a response to something, a threat of some kind. Rollo May puts it most succinctly in this way, "anxiety is the apprehension cued off by a threat to some personally significant value." In general most theorists would agree, although they might differ as to the nature of the threat. However, we now face a slight problem since the emotion of "apprehension" is a conscious feeling state. Can anxiety be present though without the person's awareness? Reid helps us here by pointing out that there are both verbal and non-verbal indicators which convey the impression "as if" the person were consciously aware of the anxiety. Kelman puts it clearly; "Not does he feel anxious, but is he being anxious?"⁵ Time and again our own experiences as individuals and psychoanalysts confirm this idea. To the previous definition then we must add a conscious-unconscious dimension.

As consciously experienced in its affective component anxiety has elements which we can describe as apprehensiveness, fearfulness, and helplessness ranging in degree from the vaguest forebodings to extreme terror and panic. In its most evident clinical form it is the classical anxiety state. Since some element of fear is involved when there is a conscious affective component, it is important to differentiate what we call fear in the anxiety experience from the emotion of fear without anxiety. Kurt Goldstein separates the two in this fashion. "In the state of fear, we have an object in front of us which we can meet which we can attempt to remove or from which we can flee. We are conscious of ourselves as well as the object, we can deliberate how we shall behave toward it, and we can look at the cause of the fear which lies spatially before us. On the other hand, anxiety attacks us from the rear so to speak. The only thing we can do is to attempt to flee from it without knowing where to go, because we experience it as coming from no particular place. This flight is sometimes successful, though merely by chance, and usually fails; anxiety remains with us. Fear differs from anxiety by its character of defense reaction, and by its pattern of bodily expression."⁵ The implications are clear. Certain *added* affects differentiate fear from anxiety-fear. These are helplessness and powerlessness in the face a mysterious unknown. I believe that President Roosevelt's clarion call in the first inaugural address in 1933 implied this when he said: "We have nothing to fear but fear itself." The second

mentioned fear was disorganizing anxiety. Anxious fear was paralyzing, healthy fear did not act as a barrier to effective action.

So far we have begun defining anxiety as a complex, multidimensional response, both conscious and unconscious with varying levels of integration involved. It can be experienced as a felt state, it can have various physiological concomitants, it can lead to various types of behaviour. Now we must add a further dimension, for anxiety can and does call into operation a wide spectrum of responses. Anxiety causes repression and given the particular mechanisms available to the person, leads to many clinical pictures which Freud recognized quite early. Hysteria, dissociative states, and phobias were substitutive and were attempted response at integration to protect the individual from the potentially intense disruption of disequilibrating consequences of anxiety. Nowadays, we can go further and recognize that many character traits and forms of personality development are reactions to the experience of anxiety. Horney has stated that all neuroses are character neuroses regardless of the symptomatic facades. Menninger et al.,⁸ in the book *The Vital Balance* have recently amplified this unitary concept of illness.

We are now in a position to explore different facets of this experience of anxiety. We need to know its origins, its functions, and its consequences. When we turn to the origins, we enter a speculative area where theoretical preconceptions do becloud the picture. Freud believed that in its essence, anxiety arose in the male from the external threat of castration, and in the female from the threat of the loss of mother love. These frightening realizations were repressed, thus staving off the experience of anxiety. The prototype of the anxiety experience was thought to be the disrupting trauma of birth, as postulated by Otto Rank. In later life, several types of anxiety were differentiated;

1. an objective anxiety reflecting the conflict between the ego and reality
2. neurotic anxiety expressing the conflict between the id and ego,
3. moral anxiety indicating conflict between ego and super ego.

Whether or not we accept the libido theory as a satisfactory basis for the understanding of human behaviour, certain important elements in the genesis of anxiety are emphasized.

1. Anxiety stems from and is related to inner

conflict.

2. The initial conflicts arose in relationship to others.
3. It is multidimensional in its origins and manifestations.

Schachtel,¹⁴ in the book *Metamorphosis* presented the concept that conflicts arose in the individual between activity affects and embeddedness affects. Anything threatening the separation from embeddedness, the state of helpless dependency, or passive receptivity would create anxiety. This anxiety was then a signal for the mother to provide satisfaction. In later experiences, any situation or event or person which posed a threat to the sheltered state would evoke anxiety. This is similar in its details to the conflict postulated by Rank when he spoke of the struggle between the wills of mother and child, or society and child as the child separated from dependency toward its own identity. Schachtel's activity affects are those emotional states which are connected with moving into the world and have "energetic, zestful, interested feeling tones and they are characterized by a positive tension feeling; they lend impetus to the ongoing activity and are felt to energize, activate and sustain, rather than get rid of tension." This accords well with Horney's description of some dimensions of the real self. "Whatever the conditions under which a child grows up, he will, if not mentally defective, learn to cope with others in one way or another, and will probably acquire some skills. But there are also forces in him which he cannot acquire or even develop by learning . . . the human individual, given a chance, tends to develop his particular human potentialities. He will develop . . . the unique alive forces of his real self, the clarity and depth of his own feelings, thoughts, wishes, and interests; the ability to tap his own resources, the strength of his will power, the special capacities or gifts he may have, the faculty to express himself and to relate himself to others with his spontaneous feelings."⁴

Sullivan delineated in exquisite detail the dimensions of anxiety when he described the anxiety-euphoria states of infancy. Schachtel called this helpless global discomfort, and Horney entitled it basic anxiety. I think that some confusion might have been avoided if she had used another term, such as "primary distress or discomfort." Whatever the term, the infant detects through empathic apprehending the existence of a lack of genuine warmth and affection and secur-

ity. This evokes the feeling state of basic anxiety which is described as being alone and helpless in a potentially hostile world. In such circumstances, of threat to the organism, perception becomes constricted, physiological functions are modified, motor responses are disorganized, and cognitive and mental functionings are impaired. The earlier in life the stress, the more intense the experiences, the greater the probability that more living functions will be involved.

I must remind you that although these processes are going on, there simultaneously are healthy growing functions. Sickness and health are not an either-or dichotomy, or mutually exclusive; but a more or less combination.

So far, in our exploration, we have begun defining our term, seen some of the ramifications in the development of the total individual, and traced its origins to the conflict between the growing spontaneous self and the cramping constrictions of the human environment that hinders its development. The conflictive state of anxiety acts as a warning, a signal and calls into action a temporarily protective mode of being, or attempts to do so, whether such a step succeeds or not. It serves somewhat like the pain receptor systems which function as warnings to the person. The intent of the mechanism unfortunately can miscarry, tending to create further damaging problems. These have been described by Rene Spitz in his studies of foundlings where the incidence of morbidity and mortality was inordinately high; and also by Sullivan in his description of the catastrophic state of somnolent apathy. In this condition, it was as if a master switch were turned off to prevent the infant from being flooded by massive anxiety.

The next development in the anxiety process occurs with the internalization of conflict. There are several factors involved in this process.

1. The infant and child begins to give meaning to and evaluate its experiences with whatever capacities it has at the moment. If he is denied satisfaction or is rejected, he may believe it is because he is bad, unworthy, unacceptable or unlovable; he may believe that the mothering one has these qualities, he may believe that both are true. To the extent that these appraisals are not corrected, a growing self concept or self identity will arise that becomes a part of the infant's and child's memory store.

2. The present perceptions will in part be incorporated with the coloration of already accu-

mulated patternings.

3. Predictions as to future possibilities will be made which will further distort misperceptions already embedded in the belief system of the child.

If this process of memory-perception and prediction is warped by cramping anxiety, little opportunity is available for correction. In fact the predicting becomes validated when the individual forces the very response from others that he erroneously assumed initially. Let me give this example. A patient, on the basis of childhood experiences, believes that this is a dog-eat-dog world, filled with cynical, uncaring people. To someone's gesture of friendship, she responds with suspicious doubts and hesitancy. In the face of this refusal to accept the proffered hand, the other reacts with withdrawal and hostile annoyance. Now the initial belief is confirmed . . . others are hostile and uncaring!

The child is driven by anxiety into relating to others out of stringent necessity, whatever the mode; whether it be to move toward others for protection, to move against others, or to withdraw from them. Each move or trend contains elements of desperate need. In its clearest forms, we can see this in the docile, obedient, good child, in the hostile, destructive, aggressive child, and in the persistently withdrawn, shy, detached, and fantasizing child. We must recognize however that whatever the predominant pattern, elements of all three coexist with varying degrees of each being in the foreground and background, conscious, and unconscious. The very existence of such divergent attitudes when they are desperately held, forms the beginning structure of inner conflicts.

A child who desperately clings to his parents will repress his hostility. A child lashing out in anger will repress his dependency, and one withdrawing from the painful stress of relationships will attempt to repress all feelings and needs involving others.

I need not elaborate on the varieties of ways available to disguise anxiety. They include the well known mechanisms of defense, as well as such processes as compartmentalizing, narcotizing, avoiding, rationalizing, alienating and so on. What is important is the recognition that whatever devices are employed, the potential for anxiety increases, and the process is perpetuated.

I mentioned earlier that the human capacity to give meaning and value to experience and beliefs becomes an important factor in the evolu-

ing process of anxiety. To this must be added a final attribute, which is peculiarly human, and that is the use of fantasy formation and the use of imagination. In its most healthy aspects and expressions, imagination is involved in creativity and productivity. To the extent that the anxiety process is in operation, fantasy formation and imagination are misused in the services of defensiveness. I believe that Karen Horney has made an important contribution in describing the way that this has happened. Given an environmental background in which one's real self is felt unacceptable, a comprehensive rewriting of personal history is undertaken. If one believes he has no worth for what he actually is, then he can gain a sense of meaning by believing that he is something that he is not, and attempting to actualize this. Unconsciously he sets out to create an idealized image which will fulfill all the unsatisfied needs of the past and present. In its essence the goal is unachievable, but out of desperate need it is desperately demanded. Attitudes, values, wishes, behavior and relationships all are determined by this compelling need; and more and more the real self is weakened. However buried the real self be, such potential for genuine growth exists, and to the extent that it does, it represents a threat to the need process of self-idealization. It is during the process of psychoanalysis when these two major forces are uncovered that the anxiety of central inner conflict can be experienced.

In our definition we noted that anxiety was a response to the threat of something of subjective value to the individual. So far I have indicated that there are three areas of threat. The earliest being to the physiological well being and biological security of the infant, the second when the various forms of compulsive relating were mutually incompatible, and the third when the comprehensive solutions toward self idealization were in conflict with the needs of the real self. I would suggest further the thesis of Alexander Martin that the awareness of the emerging involvement in unconscious conflict is a threat which arouses anxiety.

I have so far focussed on what may be called the sick or irrational aspects of anxiety. Neurotic anxiety occurs when the subjective value of personal illusions are threatened, when self deceptions are in the process of being uncovered. I am reminded of the fable of the Emperor and his new Clothes. His vanity blinds him into believing that he is wearing splendid garments, when he

actually is unclothed. His fear of appearing ignorant had blinded him to recognizing the deception of the scheming tailors.

But there is more of subjective value to a person than illusions and neurotic deceptions. Man's sense of being, his very identity, his knowledge of his mortality can evoke the natural phenomenon I have been discussing. Anxiety is an essential part of man's capacity to respond, and can be utilized in a healthy fashion. Healthy anxiety that is the result of typically human conflicts can be seen in all stages of life. In the growing child each step in maturation can initially be somewhat disrupting until the experience is mastered, confidence gained and the belief in the future probable satisfactory outcome sustained. Confidence and trust are achieved in the active, successful accomplishment of such tasks as learning to crawl, walk, talk, feed, read, etc.

The attitudes that one has toward the experience of anxiety are important to understand. Healthily, a person can accept anxiety as a signal of conflict, recognize that the conflict is in some aspect unconscious, and attempt to resolve the conflict at the moment. In time this approach diminishes the further experiencing of anxiety. Of course this is one of the functions of psychoanalytic therapy, that is to use this experience constructively and discover the sources within the personal illusion system of the patient. I think we can learn something from some Oriental philosophies which for a long time have recognized that the acceptance of the experience of anxiety diminishes its disrupting impact and facilitates creative living. A. H. Maslow⁶ has emphasized that anxiety is used creatively by those individuals he has called self-actualizing. Anxiety is neither good nor bad. Little or no anxiety may hide much of inner conflicts and inner deadness; whereas some or much anxiety might indicate the presence of conflict whose resolution could lead the individual to a more fruitful, healthier life.

Summing up, anxiety is a complex, multidimensional response to a threat of subjective value of the organism. It can involve one or all levels of integration; chemical, cellular, tissue, behaviour, and interpersonal. It has affective, cognitive, and conative dimensions. It has conscious and unconscious aspects. It can be healthy, and sick, and is affected by our attitudes toward it.

I have tried to present a unifying statement on anxiety, the active essence of which considers anxiety and its manifestations in an existential

setting. Frustration of psychic security, as well as frustration of bodily tissue needs lead to a tension state which moves the organism toward action. Anxiety is the adjustive response of a living being having available higher cortical pathways which allow elaboration and reworking of the simple stimulus-response reflex. It is ever present, it can have a feeling affective component with or without grossly apparent physiological concomitants, with or without behavioural or conceptual distortions. When the harmonious integration of the organism is threatened, the total helplessness of the human infant leads to the beginning of the universal SELF-OTHER conflict. In the maturation of human functions, the vegetative, musculo-glandular, and sensory precede those of the perceptive, cognitive, and symbolic levels. As long as the conditions in the evolution of a human being tend to minimize the potentially disruptive effects of anxiety, the specific growth of the individual will be more integrated, with potential and accomplishment being more closely related. The greater the burden of defensive protection, the less can individual potential be realized. Looked at in this manner, character, personality, symptoms, disease and disorder become constantly changing facets of an evolving process.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., Professor and Chairman

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Breech Presentation in the Primigravida

By

George R. Cole, Jr., M.D.

INTRODUCTION

There have been numerous articles in the obstetrical literature on breech presentation; however, there have been relatively few dealing with the management of labor and the mode of delivery of the primigravida breech.

It has long been recognized that breech presentation alone carries an increased fetal mortality, as well as an increased number of infant complications, both early and late; and a high incidence of obstetric complications. Inherent in breech delivery are certain factors that subject the fetus to undue risks which are not, by and large, present in vertex presentation:

1. Compression of the umbilical cord
2. Inadequately dilated cervix
3. Trauma to the unmolded fetal head
4. High incidence of prolapsed cord
5. Difficulty of determining the presence of cephalopelvic disproportion

It is important to emphasize that these exist regardless of the technic employed in delivery, i.e., spontaneous, assisted breech, or breech decomposition and extraction, with or without forceps to the after-coming head. The apprehension felt by the physician caring for a breech presentation is in great part accounted for by the "point of no return" aspect of breech deliveries. In the primigravida the problems are compounded by the necessity of the fetus traversing an untested pelvis.

In attempting to overcome these factors it has become the policy in some areas to use routine cesarean in the primigravida with breech presen-

tation. Others feel that this is unnecessarily radical treatment and requires a large number of sections to save relatively few babies, especially when we include repeat sections in subsequent pregnancies.

While abdominal delivery today no longer carries the hazard of former years, it still incurs a significant maternal morbidity, post-delivery discomfort, and an increased period of hospitalization.

It was the marked variation in management of the primigravida breech in different medical communities that stimulated the author to evaluate those cases in the two institutions he has been associated with in the past four years.

HISTORICAL BACKGROUND

During the years previous to 1921 the general management of breech delivery consisted of the classically conservative attitude expressed by the formula, "leave the case to nature. Guide the trunk until the umbilicus is born. Be ready to assist delivery at any time should delay occur."

In 1926, Irving and Goethals⁶ published an article in the American Journal of Obstetrics and Gynecology which stressed a new management of breech presentation expressed briefly as "extract at full dilation."

In the late 1930's we began to see an increase in the use of cesarean section for the primigravida breech especially in the elderly patient or in the patient with a large baby or a contracted pelvis.

In the 1940's with the decrease in maternal morbidity and maternal mortality from cesarean sections, associated mainly with the availability of antibiotics and improvements in anesthesia, the use of abdominal delivery for breech presentation

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increased. Pomerance and Daichman⁸ in 1952 reported on decreased fetal mortality with cesarean section but warned that there was still a definite increased risk to the mother with abdominal delivery.

In the late 1950's Hall and Kohl³ and Harris and Nessim⁵ in separate articles recommended a more liberal use of cesarean section for breech delivery as a means of reducing perinatal mortality and morbidity.

Wright,¹¹ in 1959 recommended that all patients with breech presentation over 35 weeks gestation who enter in labor with a living child be delivered by cesarean section. Sabin and Foote,⁹ the same year remarked that vaginal delivery is the choice in uncomplicated cases of breech presentation, but the indications for elective cesarean section should be liberalized.

In 1960 Buffin and Gallagher¹ reporting on 253 cases of breech delivery in the primigravida, stated that except for excessively large infants or prolonged labor, cesarean section was rarely indicated. Their cesarean section rate was only 5.1 percent with no increase in perinatal mortality over other reports with more liberal use of cesarean section.

Varner¹⁰ in 1962 reported on a 10-year survey including 228 nulliparas delivered of mature breech infants weighing 2500 gm. or more. Their cesarean section rate was 7.5 percent. Their corrected perinatal mortality rate was 2.9 percent for breech delivery as compared to 0.33 percent for all term vaginal deliveries in the 10-year period. Thus, in their series vaginal delivery of a nullipara at term carried approximately a ninefold increased risk to the infant's life if it presented by the breech. They felt that while most infants lost in breech delivery could be saved by cesarean section; abdominal delivery would create its own aftermath of problems.

So, we see in the obstetric literature a shift from the very conservative management of the 1920's to a much more liberal use of cesarean section in the 1940's and 50's. Now it seems the trend is toward a more middle ground with vaginal delivery for the uncomplicated patient with normal progression of labor and cesarean section reserved for the patient where special problems necessitate abdominal delivery.

EXPERIMENTAL PROCEDURE

This survey covers the seven year period 1958 through 1964 at the University of Arkansas Medical Center, and the five year period 1960 through

1964 at a private hospital. There were 19,720 deliveries at the two institutions during this time. Of the total, 15,820 deliveries occurred at the UAMC and 3,900 deliveries at the private hospital. During this period there were 662 breech deliveries of all types at the UAMC for an overall incidence of 4.2 percent which is compatible with other reports in the literature.^{2,9}

In the combined series there were 112 nulliparas who were delivered of mature infants presenting by the breech. No case with an infant weighing less than 5½ lbs. (2500 gm.) was included. Patients with previous abortions were considered primigravidas. Cases of multiple pregnancy were included if the first infant to be delivered was presenting as a breech. These 112 deliveries represent 0.70 percent of the total deliveries of both institutions during this period. In all cases, records of the mother and infant were examined in detail, as well as follow-up visits of the child when possible.

RESULTS

AGE: Of the 112 patients in the series, the youngest patient was 14 years of age and the oldest patient was 33 years of age. There were no primigravidas over age 35 and the average age for the entire group was 19.8 years.

DURATION OF PREGNANCY: The average duration of pregnancy for the 112 patients was 39 weeks.

TYPE OF BREECH: Eighty patients (72%) were in the frank breech presentation. Twenty-three patients (21%) had an incomplete breech. Five patients (4.5%) had a complete breech. In four instances the type of breech was not diagnosed. The incidence of frank breech in this series was slightly higher than some reports.²

CLINICAL AND X-RAY PELVIMETRY: One hundred and three of the 112 patients were thought clinically to have an adequate pelvis for vaginal delivery. Three were considered to be borderline, and six were thought to be small. Only one patient with a clinically adequate pelvis was found by x-ray to have a contracted pelvis. This case was delivered by cesarean section. Two of the three patients with a clinically borderline pelvis were found by x-ray to have a contracted pelvis and were delivered by cesarean section. Two patients who were considered to have a small pelvis were proven by x-ray to be adequate and both delivered vaginally without difficulty. The other four were found to be small and were delivered by cesarean section. Eighty-one patients

(72%) had x-ray pelvimetry. Pelvimetry was not done in 16 patients (14%) because of rapid labor; the diagnosis of breech being made late in labor, or the patient being admitted too late in labor to warrant the procedure. Pelvimetry was not performed in the remaining 15 cases.

COMPLICATIONS OF PREGNANCY: The complications of pregnancy are listed in Table I.

TABLE I
COMPLICATIONS OF PREGNANCY

Pre-eclampsia	14
Diabetes	3
Pyelonephritis	2
Myoma	2
Heart Disease	1
Uterine Septum	1
Vaginal Septum	1

Pre-eclampsia was present in 14 cases, or 12.5% of all cases. Five of these patients were ultimately delivered by cesarean section, but for reasons other than their pre-eclampsia. There were three juvenile diabetics in the series. Two were delivered by cesarean section at 37 weeks, after failed oxytocin inductions. Both cases of uterine myomas were given trials of labor but both were delivered abdominally. Two other cesarean sections were performed, one for poor progress of labor and one for prolapsed cord. The patient with a uterine septum was sectioned because of a poor obstetrical history and a high priority infant. The remaining cases delivered vaginally without difficulty.

The average duration of labor was 11.9 hours in the UAMC group and 10.8 hours in the private group. It is therefore evident, as has been previously reported,³ that breech presentation does not prolong labor in the majority of cases. There were three patients whose labors lasted more than 24 hours. Two of these were diagnosed as secondary uterine inertia and after rest and hydration, labor was augmented with oxytocin and vaginal delivery followed without infant morbidity or mortality. The other case was delivered abdominally after 24 hours of labor. The infant weighed 9 lbs. 14 oz. and died in the neonatal period of congenital anomalies incompatible with life.

ANESTHESIA FOR VAGINAL DELIVERY: Of the 112 cases, 94 cases were delivered vaginally. Of these 93 received some type of anesthesia.

TABLE II
ANESTHESIA FOR VAGINAL DELIVERY

	PUDENDAL & GENERAL	PUDENDAL ALONE	SADDLE BLOCK	EPIDURAL OR CAUDAL	NONE
UAMC	27	6	12	9	1
PRIVATE	30	4	5	0	0
TOTAL	57 61%	10	17	9	1

Fifty-seven patients, or 61 percent had some form of inhalation anesthesia, in association with pudendal block. The local anesthetics were usually administered for performance of the perineotomy and followed by inhalation anesthesia.

COMPLICATIONS OF LABOR AND DELIVERY: Prolapse of the cord occurred in three cases. The incidence of this complication was

TABLE III
COMPLICATIONS OF LABOR AND DELIVERY

1. Secondary uterine inertia	5
2. Prolapse of cord	3
3. Cervical laceration	3
4. Premature separation of placenta	1
5. Vaginal laceration	1
6. Third degree perineal laceration	1

2.7 percent which is lower than that reported in the literature.³ This may be accounted for by the high incidence of frank breech in this series, along with the fact only infants of 2500 grams or over were included in the study. All three cases of prolapsed cord occurred with incomplete breech presentation. One patient had premature rupture of the membranes with prolapse of the cord at home and intrauterine fetal death occurred prior to arrival at the hospital. One patient prolapsed the cord after complete dilatation and an immediate extraction was performed without loss of the infant. The third patient was delivered by cesarean section of a living infant after the cord prolapsed early in labor.

Secondary uterine inertia was diagnosed five times. One case occurred in conjunction with a borderline pelvis and was delivered by cesarean section. The other four cases all received oxytocin stimulation and all delivered vaginally. There were no fetal losses and there were no ruptured uteri.

The one case of premature separation of the placenta occurred late in labor after complete dilation and immediate extraction yielded a de-

pressed 5 lb. 11 oz. infant. The infant had respiratory distress for 48 hours, but was discharged well on the sixth post-partum day and follow-up was complete normal. The lacerations all occurred with vaginal delivery without fetal loss.

TYPE OF DELIVERY: The types of delivery are listed in Table IV. A spontaneous breech

TABLE IV
TYPE OF DELIVERY

	NO.	%
Spontaneous	4	3.3
Extraction, partial	81	73.0
Extraction, total	9	8
Version and		
Extraction, Twin	1	
Cesarean, Elective	4	3.3
Cesarean in labor	14	12.4
Forceps to after-coming head	47	42

delivery is one that is completed without aid from the obstetrician; a partial extraction is one in which some assistance is given; and a total extraction is self-explanatory. Delivery was accomplished with some form of extraction in 87 percent of the cases. This is somewhat higher than Hall and Kohl's figures of 71.3 percent.³ However, it is easily explained with the increased use of spinal, epidural, and caudal anesthesia in this series.

Cesarean section accounted for 15 percent of all deliveries with a fetal survival of 94.4 percent. If the infant with multiple congenital anomalies incompatible with life was excluded, the fetal loss of infants delivered by cesarean section was nil. The indications for the cesarean sections are listed in Table V. The two cases of diabetes have previ-

TABLE V
INDICATIONS FOR CESAREAN SECTION

1. Feto-pelvic disproportion or contracted pelvis	12
2. Diabetes	2
3. Uterine inertia	1
4. Prolapse of cord	1
5. High priority infant	1
6. Uterine myomas with poor progress	1
TOTAL	18

ously been discussed and both were sectioned after failed oxytocin induction. The case of prolapsed cord occurred early in labor and was delivered by cesarean section. The case of uterine inertia has also been discussed and was associated with a borderline pelvis and a clinically large infant.

The patient was delivered abdominally of a 9 lb. infant. The high priority infant was the patient with a proven uterine septum. She was 27 years of age with five proven abortions, all between 6 and 8 weeks gestation.

All twelve of the patients delivered abdominally for contracted pelvis or feto-pelvic disproportion had x-ray pelvimetry. Nine of these patients had a radiologically proven small pelvis. There are three cases in this group that warrant individual discussion:

Case No. 1

18 year old WF gravida 1, para 0. The pregnancy was complicated by pre-eclampsia. Patient had an elective cesarean section at term with a frank breech presentation. The pelvis was adequate clinically. X-ray pelvic measurements, AP 12.0, TR 13.0, IS 11.0, PS 5.6. The operative diagnosis was cephalopelvic disproportion. The infant weighed 7 lbs. 11 oz.

Case No. 2

16 year old CF, 38 weeks gestation with frank breech presentation. Normal prenatal course with spontaneous onset of labor. Labor progressed normally to 5 cm. dilatation and station 0. At this point epidural anesthesia was given and amniotomy performed. X-ray pelvimetry revealed AP 11.3, TR 11.9, IS 10.5, PS 5.7. After three hours the patient was sectioned. She was then dilated 6 cm. and the breech was at station +1. Operative diagnosis was obstructed labor and failure to descend. The infant weighed 5 lbs. 11 oz. She has since delivered vaginally a 6 lb. 9 oz infant without difficulty.

Case No. 3

17 year old CF 38 weeks gestation with mild pre-eclampsia. Membranes ruptured two hours prior to admission. Admitted with the cervix 2 cm. dilated and frank breech at station 0. Labor progressed normally and at 4 cm. dilatation and station +1 an epidural was given. Labor continued to complete dilatation and +2 station. At this point there was no further descent. The epidural was maintained. X-ray measurements, AP 12, TR 11.1, IS 10.4, PS 5.8. After two hours of failed descent the patient was delivered abdominally of a 5 lb. 12 oz. infant.

In both cases two and three, the patients had ruptured membranes; one time spontaneously, and the other time as a choice of the attending physician. Both cases had epidural anesthesia with failure of descent.

MATERNAL MORBIDITY: There were no maternal deaths in the 112 patients. The maternal morbidity is listed in Table VI. The vaginal

TABLE VI
MATERNAL MORBIDITY

	VAGINAL DELIVERY	C-SECTION
1. Endometritis and/or parametritis	5	3
2. Pyelonephritis	3	0
3. Paralytic ileus	0	1
4. Phlebitis requiring anticoagulants	0	1
5. Infected episiotomy with break down	2	0
	10	5
TOTAL	10.6% of vaginal deliveries	27.7% of c-sections

delivery group showed 10 patients or 10.6 percent who had post-partum morbidity. In the cesarean section group there were five patients or 27.7 percent who had post-partum morbidity. The three cervical and one vaginal lacerations were not considered as morbidity, since they neither gave febrile response or increased the hospital stay.

PERINATAL LOSS: One of the important aspects of a study of this type is to determine the perinatal loss and then to analyze all areas in an effort to find ways of lowering the mortality. One of the greatest hazards to the fetus is prematurity, which has been reported as high as $2\frac{1}{2}$ times as common in breech presentation as in vertex presentations as a whole.³ Since we are dealing only with infants weighing 2500 grams or more, the high perinatal loss reported in some series will be reduced here. This will mainly be the perinatal mortality of breech delivery and not that of breech presentation. The corrected figure in Table VII

TABLE VII
PERINATAL LOSS

TOTAL	DIED BEFORE LABOR	DIED DURING LABOR	NEONATAL DEATHS	TOTAL PERINATAL LOSS	% LOSS	CORRECTED %
112	1	1	3 *	6	5.3	3.6

* 2 neonatal deaths had congenital anomalies incompatible with life.

eliminates only the malformations incompatible with life.

Correcting for the one infant that died of unknown cause prior to the onset of labor, the corrected mortality was 2.7 percent. This leaves

TABLE VIII
COMPARISON OF PERINATAL MORTALITY FOR DIFFERENT CORRECTIONS

UNCORRECTED		CORRECTED FOR MALFORMATIONS INCOMPATIBLE WITH LIFE		CORRECTED FOR ANTEPARTUM DEATHS AND MALFORMATIONS	
NO.	%	NO.	%	NO.	%
6	5.3	4	3.6	3	2.7

three infant deaths for which no correction was made. One was non-preventable in that the patient had premature rupture of the membranes at home with prolapse of the cord. On arrival at the hospital, the fetus was dead. The other case of intrapartum death was that of a 21 year old colored female who was delivered of a 6 lb. 1 oz. stillborn infant by partial breech extraction after 12 hours of normally progressing labor. Epidural anesthesia had been used. No cause of death was found and the placenta was normal in all respects. An autopsy was not obtained. The other fetal loss was a neonatal death six hours postpartum. The infant had been delivered by partial breech extraction after 7 hours of labor with pudendal block and introus oxide anesthesia. Piper forceps were not used. The infant's weight was 6 lbs. 5 oz. Post mortem exam revealed scant sub-arachnoid hemorrhage.

SUMMARY

A review of 112 cases of breech presentation in the primigravida with infants weighing $5\frac{1}{2}$ lbs. (2500 gm.) or more was made. The investigation indicates that vaginal delivery is possible and indicated in the majority of cases. The delivery should be assisted by performing an episiotomy under local anesthesia, followed usually by inhalation anesthesia for completion of delivery. The use of conduction anesthesia can be seriously questioned in the management of the primigravida breech. X-ray pelvimetry should be performed in every primigravida with a breech presentation. The duration of labor was not prolonged in the majority of cases.

Secondary uterine inertia and prolapse of the cord were the most common complications of labor. There has been considerable difference of opinion as to the advisability of using oxytocin

stimulation in conjunction with a breech presentation. However, there were no infant losses or morbidity in this series where stimulation was limited to instances of secondary uterine inertia without evidence of disproportion.

The incidence of cesarean section was 16 percent with the most common indication being fetopelvic disproportion. There was an increased maternal morbidity associated with cesarean section. The corrected perinatal mortality for the cesarean section cases was zero.

The uncorrected perinatal mortality for the entire series was 5 percent. The corrected perinatal mortality was 2.7 percent for the entire series. There were no maternal deaths.

CONCLUSIONS

1. The majority of breech presentations in the primigravida may be safely delivered by the vaginal route.
2. Secondary uterine inertia associated with breech presentation may be managed with intravenous oxytocin when there is no evidence of fetopelvic disproportion.

3. Cesarean section shows the lowest perinatal mortality, but an increased maternal morbidity.
4. There are complications of breech presentation that are best handled by cesarean section.

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Discoid Lupus Erythematosus

G. T. Jansen (500 S University, Little Rock, Ark),
C. J. Dillaha, and W. M. Honeycutt
Arch Derm 92:283 (Sept) 1965

An evaluation of topical fluocinolone in the treatment of discoid lupus erythematosus is presented. A bilateral comparison of 0.025% fluocinolone cream to the cream base alone demonstrated the effectiveness of this program. In 59 patients, an attempt was made to control this disease with topical fluocinolone as their only treatment. Forty-three patients could be controlled in this fashion. Eleven patients responded partially, but for optimal response they required a systemic supplement. Five patients did not show any improvement following topical fluocinolone applications. Noteworthy, is a group of 37 patients who were followed up for two summer seasons. Twenty-four of these patients could be controlled with topical applications, but reapplication the following summer was required. Three patients in this group were cleared up and remained clear. Six patients who were followed

through two summers required a systemic supplement, while four did not respond to therapy.

Treatment of Oliguric Glomerulonephritis With Dialysis and Steroids

S. Nakamoto et al (W. J. Kolff, Cleveland Clinic Foundation, E 93rd St, Cleveland)
Ann Intern Med 63:359-368 (Sept) 1965

Nine patients having glomerulonephritis with severe or prolonged oliguria are reported. All patients required hemodialyses. Between 2 and 30 dialyses were performed. The indications for dialysis were uremia, hyperkalemia, pulmonary edema, and overhydration. Renal biopsy was performed in all patients to assess prognosis. Patients having an elevated antistreptolysin (ASO) titer and centrilobular involvement of the glomerular tuft had the best prognosis. Large doses of prednisone (100 to 200 mg/per day) were given to eight patients in an attempt to induce diuresis. In six patients the onset of the diuresis may have been helped by the steroids. Further evaluation of the treatment of oliguric glomerulonephritis, using large doses of steroids, is needed.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



DIAGNOSIS OF CUSHING'S SYNDROME

*Robert L. Carsner, M.D.

Cushing's Syndrome presents a variety of signs and symptoms which are all considered secondary to the excess secretion of cortisol by the adrenal cortex. In 1932, Cushing¹ unified the concept of a clinical entity due to increased adrenal activity. From autopsy studies, it was his opinion that the underlying pathology was pituitary basophilism (basophil adenoma of the pituitary). With the recognition of the myriad manifestations of hyperadrenalism, many additional cases were discovered. It was soon reasoned that the one common pathway uniting the cases was increased adrenal activity with or without an underlying apparent cause. This view was solidified by Anderson et al,² in 1938, when increased adrenal cortical hormone activity was demonstrated in the blood and urine of patients with Cushing's Syndrome. Albright,³ in 1942, demonstrated that "Compound S" was the only adrenal hormone present in sufficient quantity to produce clinical manifestations of Cushing's Syndrome. He demonstrated that there was indeed another adrenal hormone which was quite similar to testosterone in action. He labeled this hormone the "N" hormone. He was thus able to clarify the basic difference between Cushing's Syndrome and adreno-genital syndrome. With careful studies the action of excess "S" hormone was shown to be anti-anabolic rather than catabolic. The inhibition of peripheral utilization of glucose was established. With this information, the apparently divergent manifestations of Cushing's Syndrome were unified as having a common etiology—excess compound "S": to be known later as cortisol. The first practical approach to meas-

urement of adrenal activity was the measurement of urinary formaldehydogenic corticosteroids by Corcoran and Page.⁴ This has been further refined by Silber and Porter⁵ so that all 17 hydroxysteroids in the urine are measured. This includes the measurement of cortisol and its metabolites. These substances are commonly referred to as Porter-Silber chromogens or 17 hydroxycorticosteroids (17 OHCS).

In 1951, Nelson et al⁶ were able to measure 17 OHCS in peripheral blood. This provided a more direct measurement of adrenal activity and permitted some recourse from 24 hour urine samples and their attendant difficulties. It soon became apparent, however, that subtle cases of hyperadrenalism could not be diagnosed with a single determination of plasma-cortisol. In 1956, Lindsay et al,⁷ recognized the lack of diurnal variation of plasma-cortisol in patients with Cushing's Syndrome, but failed to capitalize on this. This finding was allowed to remain dormant as a diagnostic tool until the work of Ekman et al⁸ in 1961. The constancy of plasma-cortisol levels throughout a 24 hour period was established in patients with Cushing's Syndrome, and the determination of plasma-cortisol in the morning and in the evening was suggested as a diagnostic tool in suspected cases of Cushing's Syndrome. Just what was the underlying cause of the normal diurnal variation of plasma-cortisol was not proven until 1963 when Ney et al⁹ described a bio-assay method for the measurement of plasma ACTH. As expected, the curve paralleled the previously described diurnal curve of plasma-cortisol. Several patients with Cushing's Syndrome were evaluated and found to have elevated levels of plasma

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ACTH. The dependency of cortisol secretion on ACTH activity was thus definitely demonstrated. This provided laboratory validation of the pituitary adrenal servo-mechanism.

It was obvious, however, that plasma-cortisol levels gave no information regarding the type of adrenal and/or pituitary pathology present. This kind of information became essential as new surgical techniques were developed for the exploration and removal of adrenal glands. The main etiologic possibilities of Cushing's Syndrome are adrenal hyperplasia, adrenal adenoma and adrenal carcinoma. Other etiologic possibilities include adrenocorticotropin (ACTH) secreting carcinomas but these are rare. — The most frequent carcinoma found to secrete ACTH has been oatcell carcinoma of the lung.¹⁰

In the last six years a number of ingenious, yet simple, tests have been developed to study in detail the function of the adrenal glands and the adrenal pituitary servo-mechanisms. These tests have been necessary as it has become apparent that not all cases of hyperadrenalism present a classical picture of extreme weakness and muscle wasting, trunkal obesity, red striae, ecchymoses despite normal platelet counts, hypertension, osteoporosis, and diabetes mellitus. There have been documented cases of Cushing's Syndrome presenting with only one of the above diagnostic criteria¹¹.

In 1960, Liddle¹² described the dexamethesone suppression test. This test is based upon the principle that, in the normal person, increased circulating cortisol or cortisol analogue will suppress ACTH secretion with resultant decrease of cortisol secretion by the adrenal cortex. Dexamethesone was chosen because in the low doses employed it does not contribute appreciably to the level of 17 hydroxycorticosteroid in the urine and because of its prolonged biological half life. The method of this test consists of determination of 17 OHCS on two control 24 hour urine specimens, followed by the administration of dexamethesone 2.0 mg. every six hours orally for two days. During this time 24 hour urine specimens are again collected and 17 OHCS determined. With adrenal hyperplasia there will be suppression with 8 mg. per day dose (as demonstrated by decreased urinary 17-OHCS). The autonomous adrenal tumor, however, will not suppress even with this large dose of dexamethesone.

Recently Nichols et al¹³ demonstrated that 0.5 mg. dexamethesone given orally will depress

plasma cortisol for approximately 8 hours. When this medication is given at 8 A.M. or 4 P.M. the depression is lost in the normal diurnal variation. However, if the dose of dexamethesone is given at 12 midnite the normal high peak of plasma cortisol in the following early A.M. is destroyed. On the basis of this information the same group devised a short dexamethesone suppression test which can be used on an outpatient basis¹⁴. Dexamethesone is given in the dose of 1.0 mg. between 11 P.M. and 12 midnite, and plasma cortisol is drawn at 8 A.M. the following morning. A presumptive diagnosis of Cushing's Syndrome is made if the plasma cortisol is greater than 20 mgms% and the diagnosis is ruled out if the value is less than 11 mgms%. Values between these extremes require additional evaluation.

The value of this short test has been confirmed in the University Hospital. The procedure has been slightly modified in that the dose of dexamethesone is given between 9 & 10 P.M. for convenience. The greatest value has been achieved in the outpatient department. It is now possible to assess adrenal function in obese, hypertensive, diabetic patients on an outpatient basis. The inherent difficulty involved with 24 hour urine specimens is bypassed and unnecessary prolonged hospitalization is avoided. This is most helpful, as Simkin¹⁵ had pointed out in 1961 that urinary 17 ketosteroids and 17 ketogenic steroids excretion are elevated in obese patients who do not have Cushing's Syndrome. Fifteen patients have been evaluated using this procedure. Each patient has had some disturbing clinical finding suggesting possible Cushing's Syndrome. In each case the 8 A.M. plasma cortisol, after dexamethesone, has been below 15.0 mcg%. (Range 1.8 mcg% — 14.2 mcg%). One patient with proven Cushing's Syndrome did not suppress, the 8 A.M. value being 39.0 mcg%.

In summation, a new screening diagnostic test for Cushing's Syndrome has been evaluated and found to be entirely acceptable. It is suggested that this procedure be used first when diagnosis of Cushing's Syndrome is considered. The following sequence of tests is recommended in evaluating patients with possible Cushing's Syndrome.

1. One step dexamethesone suppression test using 1.0 mg. dexamethesone between 9 & 10 P.M. and determining plasma cortisol at 8 A.M. the following morning. If positive (15 mcg%+) then
2. Plasma-cortisol determinations at 8 A.M. &

8 P.M. during a single 24 hour period. If abnormal,

3. Dexamethesone suppression test using 8 mg. per day dose x 2 days. This involves a minimum of four 24 hour urine specimens as two 24 hour urine specimens are required for base-line control.

In steps 2 and 3 above, the patient should ideally be hospitalized for best results. The need for hospitalization and the rather laborious testing can be obviated in many instances by the use of this scheme. The value of the one step dexamethesone suppression test is in ruling out the diagnosis of Cushing's disease. It should find its greatest use in evaluating obese individuals who may remotely resemble patients with Cushing's Syndrome.

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Alcohol Hypoglycemia: IV. Current Concepts of Its Pathogenesis

N. Freinkel et al (818 Harrison Ave, Boston)
Diabetes 14:350 (June) 1965

The authors summarize their experiments with "alcohol hypoglycemia." Experiments in dogs and humans have indicated that the hypoglycemia is not mediated by insulin nor by more subtle enhancement of peripheral glucose utilization. Instead, the syndrome arises largely via a direct interruption of gluconeogenesis by ethanol, so that several days of preliminary fasting and diversion to the metabolism of fat are required to elicit mani-

fest hypoglycemia in normal subjects. Corroborative in vitro studies with rat, rabbit, and human liver slices are presented. These indicate that alcohol impairs the oxidative decarboxylation of all substrates and that a concomitant inhibition of gluconeogenesis may occur under appropriate circumstances. The authors suggest that the effects of ethanol are conditioned by the alternative pathways available for reoxidizing the cytoplasmic nicotinamide-adenine Dinucleotide hydrogenase which is generated during alcohol oxidation and assign a pivotal role to the intrahepatic turnover and availability of pyruvate.

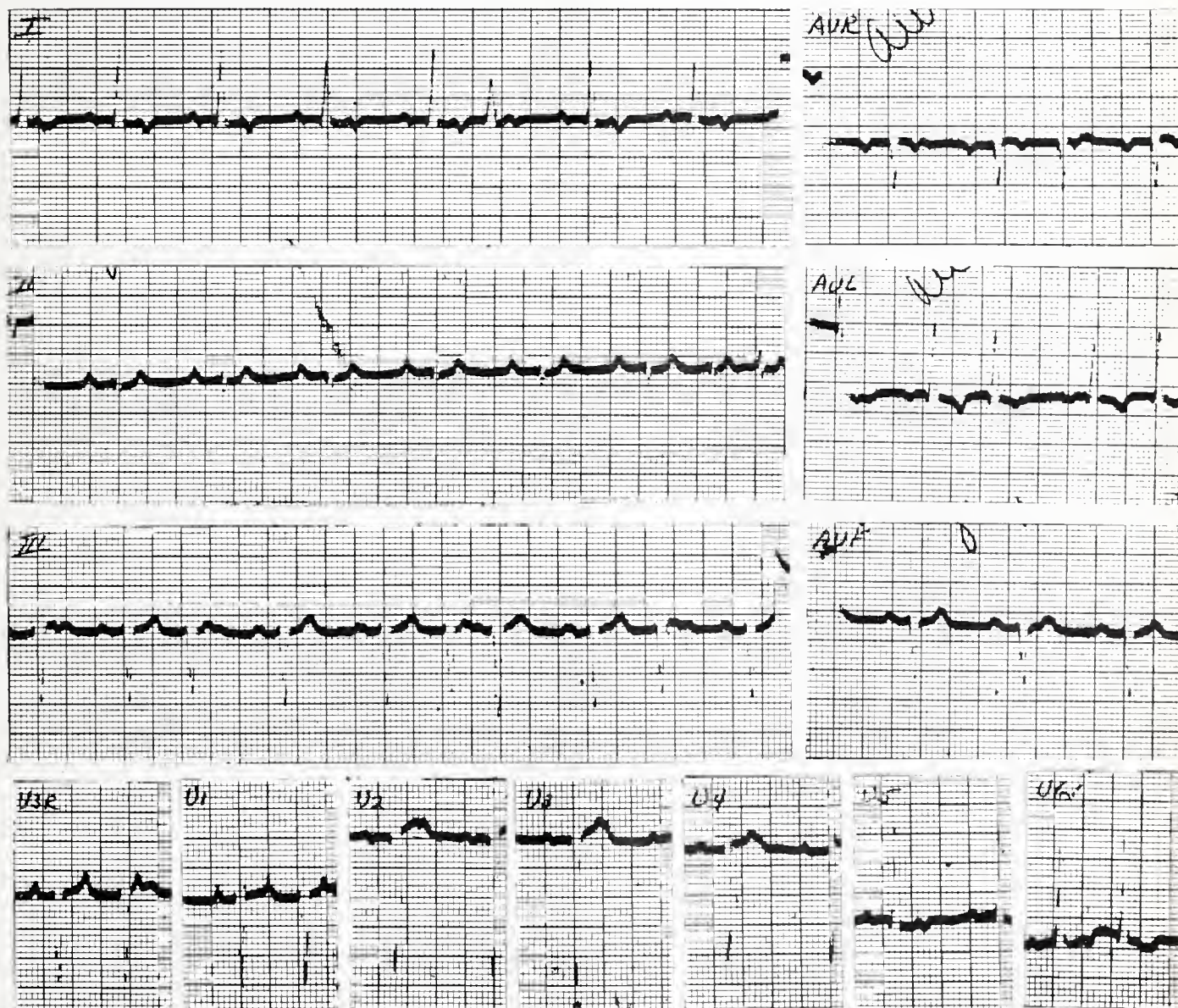


ELECTROCARDIOGRAM

OF THE MONTH

AGE: 75 SEX: M BUILD: Slender BLOOD PRESSURE: 110/80
CARDIAC DIAGNOSIS: Arteriosclerotic Heart Disease
OTHER DIAGNOSES: None
MEDICATION: Digitalis; amount not stated
HISTORY: None stated

ANSWER ON PAGE 285

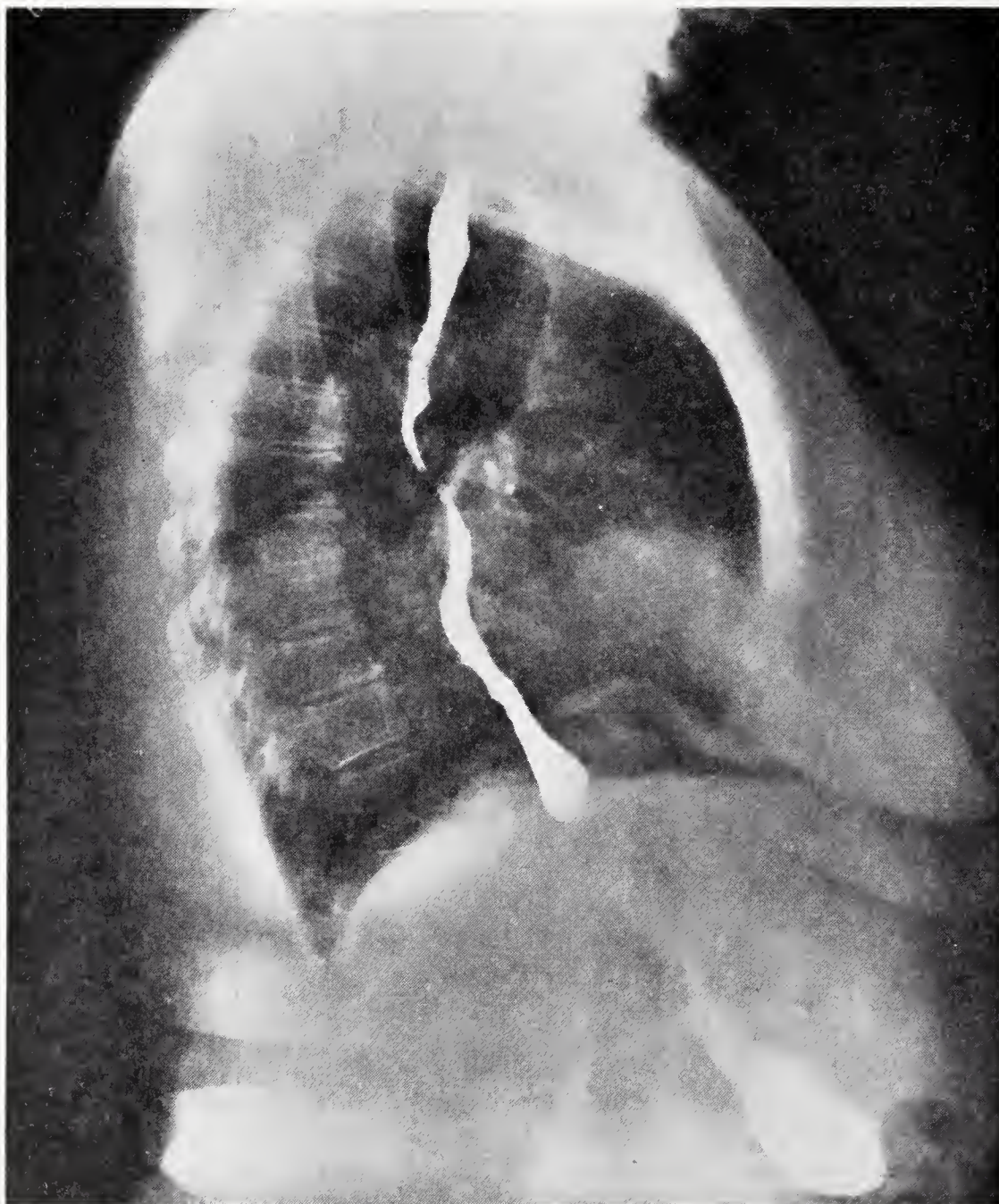


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

*Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock*

ANSWER ON PAGE 285



22-66-22

68 year old female

HISTORY: The patient had no symptoms. The abnormality was found on a routine survey chest film.



Available Services in Nutrition and Dietetics

Do you know that more and more physicians are referring their private patients such as diabetics to public health nutritionists for specialized diet counseling? This is one of many free of charge services in nutrition and dietetics available to communities through their local health units. This article will describe briefly who the public health nutritionists are, what they do, where they are in the state, and how you can get in touch with them.

The Nutrition Service staff of the State Department of Health is a branch of the Maternal and Child Health Division. In most state health departments nutrition services were originated many years ago to meet the nutrition needs of the mother and child specifically. In Arkansas nutrition services are now available to help any family or family member with problems in either normal or therapeutic nutrition. Some of the specific services will be described briefly.

Our nutrition staff at this time includes one Chief Nutritionist, four District Nutritionists serving five to ten counties each, one trainee, one half time Nutrition Consultant assigned to the Pediatric Department of the University School of Medicine, and one half time Dietary Consultant. We are hoping to expand services to include all the counties in the state and have set up a training program to help accomplish this.

District nutritionists have graduate training in nutrition and dietetics and are qualified to give consultation on therapeutic diets as well as normal nutrition. They serve as special consultants to public health nurses. They usually see patients with special problems in normal or modified diets in health department clinics or on home visits with the Public Health Nurse at her request. Consultation to patients in all socioeconomic groups is available from the nutritionist when nursing services are not required by the patient. Many physicians are referring their private

patients for help with special diet problems. Information on how to get in touch with a community nutritionist will be given at the end of this article. It is not unusual for a nutritionist to receive a request from the patient of a private physician for help with interpreting a special diet. A Health Department nutritionist or nurse always checks with a patient's physician before giving consultation to any patient requesting help.

The need of a diabetic or ulcer patient for professional dietary consultation may be readily apparent to you. Sometimes other patients needing help may have less obvious problems. Many mothers need help in planning nourishing, appetizing, economical meals even when no modified diets restrict the eating pattern of any family member. Any family may have a preschooler, a teenager or a senior citizen who is on a normal diet but still has an eating problem. Just getting the dollars available to do a good job of meeting the nutrient needs of the family is a problem to many mothers. Evaluating magazine articles or popular books on foods and dieting can be a challenge to both professional and lay people which might be better met with the help of a nutritionist. Consultation in any of these areas is available from our staff members on request.

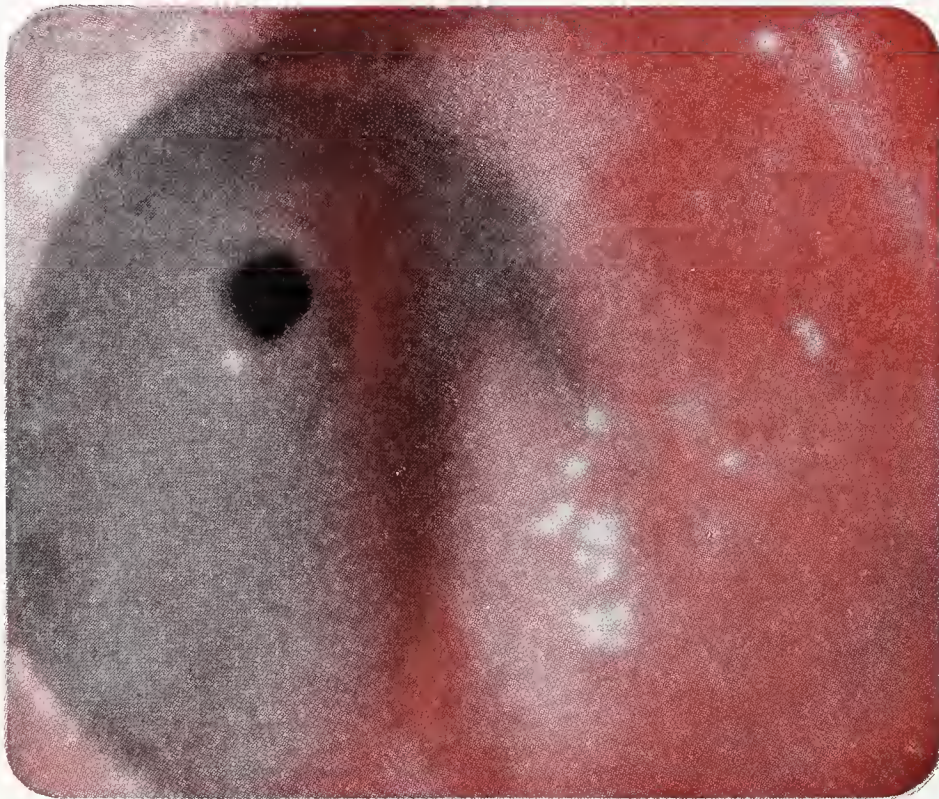
District nutritionists also serve the community in other ways. Some examples are in serving as consultants to day care programs for children, public and private schools, hospital staffs and any other groups desiring help with group feeding situations. Many lay groups such as TOPS, Girl Scouts, Parent Teacher Associations, civic groups, and others request help from these nutritionists. Staff members are always pleased to have the opportunity to discuss nutrition with organized groups wishing more information in any area of our specialty. These staff members also actively participate in organized institutes and workshops

Intragastric photography studies¹



A/ E. B., male, age 48. Normal antral contraction. Pyloric opening is not seen. It is difficult to differentiate a deep prepyloric contraction from a "pyloric fleurette" or true pylorus.

B/ Same subject after 6 mg. of propantheline bromide intravenously; antral contractions ceased. The pyloric orifice remained open and was easily identified. Better visualization of the antrum was also obtained.



Now you can see Pro-Banthine® at work (propantheline bromide)

Pro-Banthine is so effective in anticholinergic action that it may be employed in visualizing the entire pyloric region.

In addition to the intragastric photographs, cinegastroscopic studies² have demonstrated graphically not only its effectiveness but the superiority of Pro-Banthine over belladonna alkaloids.

Pro-Banthine produced complete cessation of gastric, antral and pyloric motor activity with a dose of 6 mg. intravenously. This is approximately one-third the usual oral dose of 15 mg.

Atropine at full normal dosages did not produce such cessation. It required double the usual oral dose of atropine, 0.8 mg. intravenously, to duplicate the aperistaltic action of Pro-Banthine. This dose of atropine produced pronounced discomfort and tachycardia with ventricular rates as high as 150 per minute.

It is this pharmacologic superior-

ity of Pro-Banthine which has made it the most widely prescribed anticholinergic in such conditions as peptic ulcer, functional hypermotility, irritable colon, pylorospasm and biliary dyskinesia.

Dosage—The maximal tolerated dosage is usually the most effective. For most *adult* patients this will be four to six 15 mg. tablets daily in divided doses. In severe conditions as many as two tablets four to six times daily.

Side Effects and Contraindications—Urinary hesitancy, xerostomia, mydriasis and, theoretically, a curare-like action may occur. The drug is contraindicated in patients with glaucoma or severe cardiac disease.

Pro-Banthine (brand of propantheline bromide) is supplied as tablets of 15 mg., as prolonged-acting tablets of 30 mg. and, for parenteral use, as serum-type ampuls of 30 mg.

1. Barowsky, H.; Greene, L., and Bennett, R.: Investigators' Clinical Report. Photographs courtesy of Drs. H. Barowsky, L. Greene and R. Bennett.

2. Barowsky, H.; Greene, L., and Paulo, D.: Paper read at Meeting of American Society for Gastrointestinal Endoscopy, Montreal, Canada, May 25-27, 1965.

SEARLE

Research in the Service of Medicine

for professional, semi-professional, and lay groups. Some recent examples of these activities are institutes for hospital nurses, school teachers, and food service supervisors of small hospitals and nursing homes.

Our Dietary Consultant is editor of the Arkansas Diet Manual which is available to all physicians in the state free of charge. It can be obtained by calling or writing your local health unit or from Nutrition Services, MCH Division, State Board of Health, Little Rock. Modified diet instruction sheets for the patient's use are also avail-

able free to hospitals and physicians from the same source. We are very proud of our diet manual. It has had wide acceptance in Arkansas and many other states. In 1964-1965 we had requests for it from seventeen states from New York to Florida. It is available at cost to physicians and hospitals in other states. It was written with the cooperation of the Arkansas Medical Society and the Arkansas Dietetic Association. It is endorsed by the Arkansas Hospital Association, the State Nurses Association and the University of Arkansas School of Medicine.

Nutrition Service Staff



Chief Nutritionist: Mrs. Patricia Raines, State Board of Health

Dietary Consultant: Mrs. Geraldine W. Getty, State Board of Health

District Nutritionists:

- Mrs. Mary T. Bell, Little Rock City Health Department
- Mrs. Carolyn Atkinson, Little Rock City Health Department
- Mrs. Kathleen Brown, Jefferson County Health Unit, Pine Bluff
- Mrs. Nancy W. Froman, Washington County Health Unit, Fayetteville
- ▲ Mrs. Ocrie M. Lambert, Cleburne County Health Unit, Heber Springs

Nutritionist

Assigned to U of A

Medical Center:

Margaret T. Younathan, Ph.D., Pediatric Department

Our Dietary Consultant is presently directing a special project to up-grade the training of food service supervisors in Arkansas hospitals and nursing homes. This project is sponsored by The American Dietetic Association. A member of the Dietetic Association supervises each food supervisor enrolled in the correspondence course and spends one day a month working with her. A two day laboratory session is also included in the course. Follow up help is available from the nutritionist in the community after completion of the training course.

A Senior Nutrition Consultant is assigned to the Pediatric Department at the Medical Center and serves as a liaison between that department

and the Maternal and Child Health staff.

District nutrition staff members and their headquarters offices are listed with the map of nutrition services on this page. Nutritionists usually visit the counties in their districts at least once a month. You may contact them by writing or calling the Medical Officer or Public Health Nurse in your County Health Department. Contact the Little Rock or North Little Rock City Health Departments if you live in either of these metropolitan areas. If you live in a county not regularly served by a nutritionist you may still call on your local health department. Consultation is available to all health department staffs through the state office of the Nutrition Service.



Three Families With Familial Cardiomyopathy

D. L. Boyd et al (P. D. Genovese, Cardiology Section, VA Hosp, 1481 W Tenth St, Indianapolis)

Ann Intern Med 63: 386-401 (Sept) 1965

Three families with a familial form of myocardial disease (heart failure, embolic episodes, and sudden deaths) were studied. In the first family, seven members with a similar form of myocardial disease also had abnormally shaped digits. In the second family, cardiomyopathy was associated with a history of familial goiter dating back many years. The relationship of the goiter

and heart disease was not apparent. A circulating thyroid analogue may have been present to account for the goiter and, possibly, the heart disease. In the third family there was a history of marriage between first cousins, and four members in this family showed myocardial disease of a similar nature. In this family, histological study revealed the presence of a PAS-positive, diastase-resistant material that suggested some form of biochemical defect. The mode of genetic transmission seems to follow an autosomal dominant pattern. A family history may shed light on the problem.



EDITORIAL

Investigations in the Formation of Red Blood Cells

by

Alfred Kahn, Jr., M.D.

The stimulus to formation of red blood cells is a protein-like substance, erythropoietin. Its major source of production is in the kidneys. "The Metabolism of Erythropoiesis Due to Deficient Erythropoiesis" by W. F. Rosse and T. A. Waldmann (*Journal of Clinical Investigation*, Volume 43, page 1348, July, 1964) reports on studies done in eight patients. Since erythropoietin has not been purified, it could not be labelled with radioactive material. The production of erythropoietin can be stopped by the administration of transfusion, and the rate of disappearance of erythropoietin from the blood was calculated in this study by biological assay on National Institute of Health mice. The erythropoietin levels on the patients were calculated for 140 hours or less. The mean value of the half time disappearance of erythropoietin was 24.9 hours. A single exponential curve was seen in all of these disappearance studies. Based on this study and the studies of others, Rosse and Waldmann conclude that this straight line fall in the amount of blood erythropoietin reflects a rapid stop in erythropoietin production after transfusions and the slower catabolism of erythropoietin probably accounts for most of exponential curve. Some erythropoietin is lost into the urine, perhaps 10%; using one case as a study of clearance, it was felt that the erythropoietin in the urine reflected clearance from the blood rather than a direct loss at a site of manufacture. The author states that the liver and bone marrow may be important sites of erythropoietin degradation; perfusion of the liver results in decreased activity, and indirect studies of the effects by bone marrow on erythropoietin levels have been performed with positive results.

The author points out that if erythropoiesis is depressed by depressing erythropoietin production, the maximal depression of erythropoiesis will occur seven to seventeen days after the incident(s) producing the depression.

Another facet in the overall study of red cell formation is a paper on body radio-activity in patients with liver disease from a series on iron absorption by Greenberg, Strohmeyer, Hine, Keene, Curtis, and Chalmers (*Gastroenterology*, Volume 46, page 651, June, 1964). The authors were trying to determine in this study if liver disease anteceded hemochromatosis and caused the latter by changes in iron absorption or if hemochromatosis led to cirrhosis through liver cell injury by iron. The authors measured iron absorption in twenty-four patients with liver disease and compared them to controls to see if liver disease led to an enhanced absorption of iron. Iron absorption was determined by measuring total body radiation. Among the twenty-four cirrhotics were three patients thought to have hemochromatosis based on these criteria: no anemia, elevated serum iron with 60% or more saturation of iron binding capacity, increased bone marrow hemosiderin, excessive liver hemosiderin, biopsy evidence of hepatic cirrhosis, and an abnormal glucose tolerance curve. The results of this study were most interesting in that some cases of liver disease did absorb more iron than normal controls while some did not. The controls range of absorption was 1.7% to 9.5% while in cirrhosis the range was 1.0% to 44.7%. Two patients with hemochromatosis had normal iron absorption and one patient with hemochromatosis had a very low iron absorption. In general, the authors

conclude that the enhanced tendency of some cirrhotics to absorb more iron than normal may indicate liver disease antecedes hemochromatosis. Six cirrhotics in this study absorbed very large amounts of iron and the liver disease seemed to be the only cause; rate of erythropoiesis and iron store are considered to be the only two systemic factors which affect iron absorption, and in these cases erythropoiesis and iron stores were not an apparent factor. Linscheer, Greenberg, Moore, and Chalmers (*Gastroenterology*, Volume 46, Page 662, June, 1964) have performed experiments on humans with cirrhosis to determine if iron absorption in the proximal small bowel, which is greater in cirrhotics, was due to extraluminal or intraluminal factors. They compared eleven patients to ten normal controls. A four-lumen two balloon tube was passed into the small bowel, and the balloons were inflated so as to isolate a loop of bowel. Into the isolated loop radio-active iron (Fe^{59}) was infused. The iron absorption was studied by whole body counting and by red blood cells uptake of Fe^{59} . The cirrhotics did absorb more iron. The data suggested that the duodenal aspirate in patients with cirrhosis in some way promoted the enhanced iron absorption. Something in the normal duodenal secretions seems to have an inhibitory effect of iron absorption, but the nature of this defect with regards to cirrhotics is unknown, and the authors have simply concluded that the iron absorption enhancement in cirrhotics is due to both intraluminal and extraluminal factors.

Marrow iron was estimated and reported on in

1332 needle biopsies by Ellis, Jensen, and Westerman (*Annals of Internal Medicine*, Volume 61, Page 44, July, 1964). He states that increased stores have been found in pernicious anemia, hemolytic anemia, marrow aplasia, uremia, chronic infection, hemochromatosis, and hemosiderosis. Decreased iron stores are found and have been reported in iron deficiency anemias and rheumatoid arthritis. Very large marrow samples were used in this author's studies and absent iron stores were found in the following diseases: iron deficiency anemia, polycythemia vera, collagen disease, infiltrative disease of marrow, uremia, and chronic infection. It is of interest that 55% of the patients with no iron in their marrow using a large biopsy technique were undetected by the use of other methods of study.

Vitamin B-12 metabolism has been studied in a variety of ways; one method is to use radio-active cobalt⁵⁸ labelled cyanocobalamin. This was done by Deo and Ramalingaswami to study the effects of protein deficiency on vitamin B-12 absorption (*Gastro-enterology*, Volume 46, page 167, February, 1964.) Rhesus monkeys which were made protein deficient had a decreased cyanocobalamin absorption. This was readily correctable by protein. The authors attributed this in part to injury to the intestinal mucosa from lack of protein. It was speculated that part of the difficulty might be due to poor intestinal motility or pancreatic atrophy, also related to the protein deficiency. In any event, it is quite clear protein lack interferes with the production of red blood cells, and perhaps at a number of metabolic sites.



From Russia Sans Love

Richard M. Fleming, M.D.*

Three years ago I visited the Soviet Union to attend the Eighth International Cancer Congress. While there I had the opportunity to see some of the hospitals, clinics and laboratories and observe first hand their medical techniques and practices.

One of the most novel experiences of the trip was a visit to the Scientific Research Institute for Experimental Surgical Apparatus and Equipment

in Moscow. We were shown a variety of surgical instruments which were chiefly automatic suturing devices based on a modification of the old Von Petz Clamp. Our hosts presented the instruments as if they represented an entirely new concept. The much heralded blood vessel anastomosis clamp was demonstrated to us and we found it to be a well engineered precision instrument although it is somewhat of a chore to prepare the instrument for use.

*Reprint from the Bulletin of the Dade County Medical Association (Miami, Florida). Vol. 35, No. 7, July, 1965, pp. 11-12.

There is an interesting story concerning the vascular clamp and the development (or rather the lack of development) of vascular surgery in the U.S.S.R. Apparently a central committee had reviewed the problems of vascular surgery and decided that if this surgical field were to be properly developed, an instrument must be devised which would rapidly and accurately anastomose blood vessels. Accordingly, an all-out effort was mounted with the cooperation of surgeons, engineers, machinists, physiologists, etc., and this beautiful instrument was developed. When clinical trials were finally conducted, the instrument proved to be bulky, difficult to use and impractical. At the time we were there it had been used very little or even discarded after a brief trial in some clinics. Meanwhile, other phases of vascular surgery had been developing at a snail's pace; very little surgery was being performed on the aorta or peripheral arteries at the time of our visit.

By contrast, in the free world, investigators in hundreds of laboratories had moved in whatever direction their findings led them and they developed an entirely new field of surgery before the Russians had started.

With the above comparisons in mind, it is difficult for me to understand why the President's Commission on Cancer, Heart Disease and Stroke, would propose to further centralize medical activities in this country. Yet the Commission recommended that "planetary systems" of medical service be developed, with certain universities as the hub of this complex, linked to "Diagnostic and

treatment centers (400 of these!) and community hospitals." This would lay the groundwork for the establishment of central planning committees to direct all research *and* treatment protocols! It is ironical that of the dedicated men who have made this proposal, at least one of the members has visited the Soviet Union, seen and heard the things I've reported, and criticized this aspect of Russian medicine.

Under this plan the universities might eventually find they have been delegated responsibility for medical care for the entire population. The universities have problems enough in providing undergraduate, graduate and post-graduate education, as well as doing the bulk of the research. Besides this, they participate in patient care to the extent necessary to provide for the training of students, internes and residents and thereby set the standards for hospital practice throughout the country. I cannot conceive of the universities willingly accepting this additional burden implied in the Commission's recommendations.

Furthermore, such concentration of authority in the hands of a few chiefs of departments smacks of a reversion toward the old German *Chefarzt-Herr Professor* system so prevalent before the Halsted concept of resident training took roots in this country.

Thus it would seem that by adopting these proposals of the President's Commission, we would embrace the worst of two systems, as we take two giant goose-steps backward.



Medical Education and Medical Care*

Hayden C. Nicholson, M.D.

A matter which is causing increasing concern to many medical educators—certainly to me—is the increasing extent to which medical schools are being asked to assume direct responsibility for the provision of medical care.

I think there can be no question that the two primary responsibilities of a medical school—as of any institution of higher learning—are the advancement of knowledge and its dissemination—

research and teaching. In recent years, as medical knowledge has advanced, the avenues along which medical research can profitably be conducted have multiplied manifold and the potentialities of medical research have expanded to a degree that earlier would have seemed incredible. The public has recognized the value of and the potential rewards to be gained from medical research, has been willing to support it rather generously, and has demanded that it be pursued vigorously.

The growth in medical knowledge, associated

*Reprint from the Bulletin of the Dade County Medical Association (Miami Florida), Vol. 35, No. 7, July, 1965, pp. 37-38.

with, and in large measure resulting from the expansion of medical research, has increased the teaching responsibilities of the medical schools, particularly in the areas of postgraduate and continuing education. The nature of medical education requires that it be conducted in a patient care setting, ordinarily in a hospital and its associated clinics. This means that the clinical faculty of a medical school, whose primary responsibilities are teaching and research, inevitably and quite properly are responsible also for the medical care provided in the school's teaching hospital. The medical school then has assumed a third responsibility, responsibility for patient care. This should be regarded as subsidiary to its two primary functions of teaching and research, but it is a responsibility which cannot be neglected.

It is important that a medical school keep its two primary functions—teaching and research—in proper balance, a subject I have discussed in previous issues of the *Bulletin*. It is equally important that the medical school's patient care responsibilities be kept in balance and not be allowed to overwhelm its basic responsibilities in teaching and research. There are some who think that medical schools have allowed their research activities to dominate their programs to the disadvantage of their teaching responsibilities. In my opinion, there is a much greater and more imminent danger that both primary functions of a medical school—teaching and research—will suffer as a result of the overwhelming responsibilities for patient care that medical schools are assuming or having forced upon them.

This certainly is the situation at the University of Miami at the present time. The volume of patients—both in-patients and out-patients—for which our faculty are responsible is far greater than is necessary for our teaching program. An undue proportion of the time and energy of our faculty and of the resources of the School are being devoted to the care of patients at Jackson Hospital at the expense of the School's basic functions of teaching and research.

Such a situation is not particularly uncommon among American medical schools. Although the problem varies greatly in degree from school to school, medical school deans are inclined to accept the provision of patient care in their major teaching hospital as one of the inevitable problems with which they have to contend. What seems more alarming is the growing tendency for medical

schools to be asked to assume direct or indirect patient care responsibilities in satellite institutions that have no major role in the school's teaching program.

An example of this, which we have all come to accept, involves the hospitals of the Veterans Administration. In the period between the two World Wars the quality of medical care in Veterans Administration hospitals fell to a disgracefully low level. Following World War II, officials of the Veterans Administration exhibited remarkable vision and considerable courage in drastically revamping the VA medical program. It was conceived that the only way to insure medical care of high quality in VA hospitals was to develop their residency training programs under the supervision of medical schools. As many of the existing hospitals as possible were affiliated with medical schools through so-called Dean's Committees and virtually all new hospitals were built in association with medical schools. The medical schools accepted these responsibilities as a patriotic duty and the Veteran's Administration has consistently supported the program and done its best to make it advantageous to the medical schools as well as to the VA hospitals. Although the relationship has not been without its difficulties it has been well accepted by the medical schools and certainly has been responsible for providing medical care in the Veterans Administration hospitals of a quality far higher than they had ever known before and that probably could have been attained in no other way.

Recently, following the so-called DeBakey Report, there has been introduced in the Congress legislation calling for the establishment of "regional medical complexes for research and treatment in heart disease, cancer, stroke and other major diseases." It is assumed that a medical school will be at the heart of each of these "regional medical complexes." I shall not comment here on the fundamental soundness of the proposal or the basic philosophy involved. If the program should be enacted I am sure the nation's medical schools will do their part to make it succeed. However, I cannot help feeling that medical schools can best contribute to meeting the medical care needs of the American people by advancing medical knowledge through research and by producing well-trained physicians, and they should involve themselves in the direct provision of medical care only to the extent that that contributes to these primary missions.

MEDICINE IN THE



University of Arkansas School of Medicine Memorial and Honor Fund

In Memory of Edward K. Hyatt
Dr. and Mrs. Howard K. Suzuki.

Dr. Hyatt speaks on "Medicine and Medicare"

Dr. Lewis Hyatt spoke to the Monticello Rotary Club and the Monticello Lions Club on "Medicine and Medicare" during September.

MEDICAL ASSISTANTS ORGANIZED IN MILLER COUNTY

The Arkansas State Medical Assistants Society announces the organization of a component society in Miller County. Dr. Karlton Kemp of Texarkana is one of the advisors from the Arkansas Medical Society to the Assistants group.

The Miller County Medical Assistants give Dr. Kemp most of the credit for the successful new start. Dr. Kemp wrote each member of the Miller County Medical Society pointing out to the doctor the advantages of having his assistants belong to an organization dedicated to improving the job performance of its members. He suggested that the benefits to the doctor were impressive enough to justify his paying his assistant's modest dues to the organization.

Fundamentals of Otolaryngology

The University of Tennessee College of Medicine will offer a postgraduate seminar in "Fundamentals of Otolaryngologic Allergy" on March 15-19, 1966.

The purpose of this seminar will be to instruct those physicians limiting their practice to otolaryngology in the practical aspects and basic principles of allergy in relation to this specialty.

The faculty for the seminar will consist of Sam H. Sanders, M.D., professor and chairman, department of Otolaryngology, The University of Tennessee College of Medicine; E. Eugene Cowan, M.D., clinical assistant professor of Medicine, University of Colorado Medical Center, Denver, Colorado; Kenneth Craft, M.D., assistant clinical

professor of Otolaryngology, University of Indiana School of Medicine, Indianapolis, Indiana; Sylvester C. Missal, assistant clinical professor of Otolaryngology, Western Reserve School of Medicine, Cleveland, Ohio.

Also participating as guest clinicians will be Edley H. Jones, M.D., surgery director, division of Otolaryngology, University of Mississippi, Jackson, Mississippi, and Richard H. Stahl, M.D., assistant clinical instructor in Otolaryngology, Western Reserve School of Medicine, Cleveland, Ohio.

THE MONTH IN WASHINGTON

Washington, D.C. — President Johnson has signed into law a modified version of the controversial, so-called DeBakey legislation authorizing establishment of regional cooperative programs of research, training and related patient care in the fields of heart disease, cancer, stroke and related diseases.

A total of \$340 million in federal funds will be available during the next three years to help universities, medical schools, research centers and other public or nonprofit institutions, such as hospitals, and agencies in (1) planning, (2) conducting feasibility studies and (c) operating pilot projects.

The legislation was amended in the House, as recommended by the American Medical Association, to make it less objectionable to the medical profession. Dr. James Z. Appel, president of AMA, said the some 20 House amendments were substantial and should "allay many of the fears the medical profession had about the original bill."

But even so, the AMA could not support the amended legislation, Dr. Appel said, "because we believe it still introduces an undesirable concept."

The original bill called for establishment of regional medical complexes and would have included "other major diseases."

As enacted into law, the programs are to be carried out "in cooperation with practicing phy-

sicians." Patient care is limited to that "incident to research, training or demonstrations." No patient can receive such treatment except on referral of a practicing physician.

Construction is limited to remodeling and renovation of buildings and replacement of obsolete equipment.

The Surgeon General of the Public Health Service is designated as the official responsible for final approval of federal grants under the program. However, he can act only upon the recommendation of a national advisory council. And an application for a federal grant first must be approved by a local advisory committee. Both the national and local committees must include practicing physicians.

Present federal plans call for starting eight regional programs during the first year and 17 more during the next two years. As of this writing, none of them had been announced.

* * * * *

The Department of Health, Education and Welfare has ruled that physicians are not required to sign racial non-discrimination pledges in order to receive payment for treating federal-state welfare patients.

The ruling followed protests of some state medical societies and individual physicians when some

state health departments interpreted the new Civil Rights Act as requiring the signing of such a pledge. The societies and physicians protested that such a pledge would constitute an unnecessary federal interference in the patient-physician relationship.

The recent special meeting of the AMA House of Delegates adopted a resolution pointing out that non-discrimination conditions under the Principles of Medical Ethics and "willingly self-imposed by the medical profession far exceed any pledge of this nature demanded by a federal bureaucracy."

* * * * *

The House Ways and Means Committee has postponed until next year consideration of legislation that would liberalize the so-called Keogh law. The present law permits physicians and other self-employed persons to defer income taxes on a maximum of \$1,250 a year set aside in a retirement fund. A bill before the committee would increase the maximum to \$2,500 a year.

* * * * *

The Public Health Service reported only 35 cases of polio during the first 34 weeks of this year, a record low for the period. For the same period last year, 65 cases were reported.

During the same period this year, only 96 cases

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: A: 170 V: 85

RHYTHM: Atrial Tachycardia

PR: — sec. QRS: .08 sec. QT: .30 sec.

ABNORMAL: Atrial tachycardia, P-P interval 0.35, with mostly 2:1 block. Significant QS deflections V₂, V₃, V₄. Abnormal T inversions, I, aVL, V₅, V₆.

COMMENT: Tracing shows paroxysmal atrial tachycardia with varying block, mostly 2:1. Probable residuals old anterior infarction. This arrhythmia is frequently associated with digitalis toxicity.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Bronchogenic cyst.

X-RAY Findings: A large smoothly rounded soft tissue mass occupies the posterior half of the lower chest cavity. On a PA view it was in the mid line, superimposed on the heart shadow.

No bone changes were noted. The mass was not attached to the heart.

of diphtheria were reported. This figure compared with a five-year median of 244 cases in the same number of weeks.

* * * * *

Dr. William H. Stewart, 44-year-old Public Health Service career officer, is the new PHS Surgeon General.

He succeeded Dr. Luther Terry who resigned to become vice president of the University of Pennsylvania.

Recognized as an expert in the field of public health administration, Dr. Stewart had headed the National Heart Institute since last August. For the previous two years, he served as assistant to the special assistant to the HEW Assistant Secretary for Health and Medical Affairs.

After being graduated from the Louisiana State University School of Medicine, he served in the Army Medical Corps from 1946 to 1948. He gave up a pediatric practice in Alexandria, La., in 1951 to join the PHS Commissioned Corps.

* * * * *

A total of 1,529 physicians will be drafted during the first part of next year. The military needs in Viet Nam made necessary an increase in the doctors' draft over the 852 called last January and the 1,000 in January, 1964.

The 1966 draft will cover physicians who completed their internships from two to five years ago, many of whom now are in private practice.

All those drafted will be given an opportunity to accept officer Commissions before induction.

Of the quota, 949 will be for the Army, 266 for the Navy and 320 for the Air Force.

In addition to the physicians, 350 dentists and 100 veterinarians will be drafted.

* * * * *

The Surgeon General's Advisory Committee on Immunization has recommended community vaccination programs against measles.

The committee said that measles is one of the most important causes of serious illness in children and recommended that continuing "maintenance" programs aimed at vaccinating children about one year of age be established in all communities.

"Additionally, consideration should be given to the concept of full immunization of all children entering schools, nursery schools, etc., since measles transmission in the community occurs principally among children in such settings," the committee said.

"Widespread immunization may be achieved

through routine and intensive programs conducted in physicians' offices and immunization clinics in both public health and private medical practice. In some instances, mass community-wide vaccination programs may prove practicable in communities or segments of communities in which immunization levels achieved through routine practice are known to be low.

"If community-wide programs are conducted, cognizance must be taken of the fact that such programs are necessarily more complex than those involving oral polio vaccine, for example, since measles vaccines must be parenterally administered."

COUNCIL MINUTES AUGUST 15, 1965

The Council of the Arkansas Medical Society met at 11:00 a.m. on Sunday, August 15, 1965, in the Marion Hotel, Little Rock, with the following in attendance: Thomas, Hyatt, Whittaker, Shuffield, Saltzman, Ledbetter, Gray, Millar, Bell, Townsend, Burton, Wood, Kennedy, Payton Kolb, Applegate, Fowler, Long, Hundley, Verser, Ellis, Snodgrass, James Kolb, Edgar Easley, Dean Shorey, Friedman Sisco, Martin Heidgen, John Busby, Mr. Harris, and Mr. Schaefer.

Business was transacted as follows:

- I. Dr. Louis Hundley discussed the report of the Polio Advisory Sub-Committee which had been approved by the House of Delegates at the 1965 Annual Session. The report suggested changing the name of the committee to the Immunization Sub-Committee and enlarging the area of responsibility to include immunization against other diseases—including diphtheria, pertussis, tetanus, smallpox, and measles. Dr. Hundley pointed out that since the Polio Committee was a sub-committee of a constitutionally established committee, it was the feeling of the Constitutional Revision Committee that it would not be necessary to amend the constitution to change the name and duties of the committee. He further stated that he felt that the Council could make the necessary change by adopting an appropriate motion. Upon the motion of Saltzman and Shuffield, the Council voted to change the committee name and area of responsibility in accordance with the Polio Advisory

- Sub-Committee report.
- II. Dr. James Kolb discussed the refusal of the Central Office of the Veterans Administration to approve a fee schedule negotiated by the Society and local VA officials calling for a \$5 conversion factor on all sections of the California Relative Value Schedule. Upon motion of Kennedy and Applegate, the Council voted to direct the negotiating committee to insist on the \$5 conversion factor as a condition for renewing the contract with the VA.
 - III. Dr. John Busby, chairman of the Program Committee for the Annual Session, discussed his plans for the 1966 meeting. Upon the motion of Townsend, the Council voted to approve in principle Dr. Busby's ideas for a scientific program. The Council voted to ask Dr. Busby to consider further his plans for social activities for Tuesday night, the consensus being that the President's Banquet should be retained as a feature of the meeting. By the same motion, the Council voted to approve holding the meeting in the Arlington Hotel.
 - IV. Dr. Jack Kennedy discussed a survey of schools on physical examinations and athletic injuries and requested approval of an expenditure up to \$100 by the headquarters office to assist in making the survey. Upon the motion of Kennedy and Applegate, the Council approved the expenditure.
 - V. Dr. John Busby discussed a proposed meeting of Hospital Association representatives and Medical Society representatives to be held in October. He suggested that the Medical Society and the Hospital Association share expenses for a speaker for the program. Upon the motion of Saltzman and Townsend, the Council voted to approve the Society's share of the expense.
 - VI. Dr. Lewis Hyatt discussed the Public Relations impact of the Society carrying cigarette advertising in its Journal and having tobacco exhibits at the Annual Session. Upon the motion of Saltzman and Payton Kolb, the Council voted to discontinue both methods of advertising tobacco.
 - VII. Upon the motion of Payton Kolb and Elvin Shuffield, the Council voted to re-appoint Dr. Joe Rushton to the Board of Trustees of the Medical Education Foundation for Arkansas.
 - VIII. Mr. Schaefer reported on his investigation of fireproof storage for the old journals and records of the Society. His report considered the possibility of the purchase of fireproof safes or fireproof filing cabinets. The Council discussed various alternatives such as bank vault storage. Upon the motion of Saltzman and Applegate, Mr. Schaefer was instructed to investigate further such alternative possibilities.
 - IX. Upon the motion of Kennedy and Hyatt, Dr. Saltzman was elected a member of the Board of Trustees of the Arkansas Medical Society Employees Pension Trust, in the place of Dr. J. J. Monfort, deceased.
 - X. Upon the motion of Saltzman and Townsend, the Council voted to appoint Dr. W. J. Wilkins, Jr., of Pine Bluff to the position on the Special Fee Committee to succeed Dr. J. J. Monfort.
 - XI. Upon the motion of Wood and Shuffield, the Council voted to approve Dr. F. E. Utley as chairman of the Professional Relations Committee of the First District. Dr. Utley was nominated by the councilors from the first district.
 - XII. Upon the motion of Wood and Shuffield, Dr. Charles Taylor was elected to the Second District Professional Relations Committee succeeding Dr. Monfort.
 - XIII. Dr. Lewis Hyatt spoke to the Council regarding the meeting of the county society officers, committee chairmen, delegates, and Council members to be held on September 19th. He requested the assistance of the councilors to insure a good attendance at the meeting.
 - XIV. Dr. Hyatt discussed a request by the Ouachita County Medical Society for a special meeting of the House of Delegates and that Society's circularization of all members of the Society in this regard. Dr. Hyatt reported that he had agreed to call a meeting when sufficient notice could be given to the delegates

and upon a proper petition as specified in the Constitution. He pointed out to the Ouachita County officials that a House of Delegates meeting was already scheduled for September 19th and that he felt that date would be soon enough to discuss the resolutions of the Ouachita Society. Upon the motion of Payton Kolb and Wood, the Council voted to approve Dr. Hyatt's actions and to commend him for his handling of the incident.

XV. Dr. Payton Kolb discussed a resolution by the Arkansas Society of Anesthesiologists which had been forwarded for presentation to the Council. The resolution called for representation of the anesthesiologists on any special fee committee. Dr. Kolb and Dr. Hundley pointed out that the anesthesiologists had always had representation on the Fee Committee and that the Society hoped such representation would continue in the future. The Executive Vice President was directed to write Dr. Dulaney of the Arkansas Society of Anesthesiologists to that effect.

XVI. Dr. Hundley reported for the Budget Committee that they felt an increase in salary for the Executive Vice President was indicated and that provision should be made to allow him to give salary increases to headquarters office personnel as he felt they were indicated. Upon the motion of Saltzman and Whittaker, the Council approved an increase in Mr. Schaefer's salary. By the same motion, the salary budget was raised to cover possible increases for headquarters employees.

XVII. Dr. Winston Shorey discussed the De-Bakey proposals, indicating that as a medical school dean he did not feel he could oppose the measure. Dr. Townsend related his experience in testifying before the House Interstate and Foreign Commerce Committee regarding the De-Bakey proposals.

APPROVED: H. W. Thomas, M.D. Chairman

COUNCIL MINUTES SEPTEMBER 19, 1965

The Council of the Arkansas Medical Society met in the Hotel Marion in Little Rock, Arkansas,

on Sunday, September 19th. The following members of the Council were present: Hyatt, Long, Whittaker, Thomas, Shuffield, Payton Kolb, Kennedy, Fowler, Wood, Applegate, Edwards, Townsend, Norton, Bell, Gray, McCrary, Koenig, Kemp, Fairley, Millar, Saltzman, Kahn, Price, Verser, Snodgrass, Hundley, James Kolb, and Ellis. Mr. Warren, Mr. Harris, and Mr. Schaefer were also present.

The Council transacted the following business:

- I. Upon the motion of the councilors of the Eighth District, the Council elected Dr. John McC. Smith to serve on the Professional Relations Committee for that district replacing Dr. T. J. Raney, deceased.
- II. Upon the motion of Saltzman and Koenig, the Council voted to authorize expenses for travel of a committee member to a meeting on Civil Defense and Disaster Relief in Chicago.
- III. After hearing a discussion of the need for active participation by physicians on the Hospital-Insurance-Physician Committee (HIP), the Council voted to authorize the chairman of the Council to appoint a new committee suggesting that the committee be enlarged to include one member from each councilor district.
- IV. Dr. Koenig discussed the possibility of having Arkansas Blue Cross-Blue Shield designated as the administering agent for Part "B" of the new Medicare law. Upon motion of Koenig and Saltzman, the Council voted 14 to 1 to authorize Blue Cross-Blue Shield to say that the Medical Society approved its being so designated. Upon the motion of Shuffield and Kennedy, the Council voted that if Blue Cross-Blue Shield is unsuccessful in being appointed the administering agent, the Arkansas Medical Society attempt to be appointed as the administering agent for the program.

APPROVED: H. W. Thomas, M.D. Chairman

SPECIAL MEETING HOUSE OF DELEGATES, ARKANSAS MEDICAL SOCIETY

The House of Delegates of the Arkansas Medical Society met in a special called session at 3:05 p.m. on Sunday, September 19th, at the Marion Hotel in Little Rock.

Speaker J. P. Price called the meeting to order and requested Society president Lewis Hyatt to give the invocation.

Mr. Schaefer called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, T. S. Van Duyn; BOONE, H. V. Kirby; BRADLEY, George F. Wynne; CRAIG-HEAD-POINSETT, John Kirkley; CRAWFORD, M. C. Edds; CRITTENDEN, David H. Pontius; DESHA, Lee Parker; DREW, A. K. Busby; FRANKLIN, David L. Gibbons; GARLAND, M. R. Springer, Jr.; W. R. Mashburn; GREENE-CLAY, Omer E. Bradsher; HOT SPRING, R. V. McCray; INDEPENDENCE, J. E. Lytle; JEFFERSON, Ross Maynard; Charles Reid; JOHNSON, Guy Shrigley; LOGAN, W. D. Jones; OUACHITA, Bruce Ellis; PHILLIPS, L. J. Pat Bell; PULASKI, Winston K. Shorey, John McC. Smith, W. E. Morris, Purcell Smith, Thomas Jansen, Samuel Phillips, Robert Stainton, W. Myers Smith, James Weber, William Rhinehart, Dale Alford; SEBASTIAN, A. S. Koenig, Harley Darnall, W. B. Stanton; UNION, J. B. Wharton, Jr., Kenneth R. Duzan; WASHINGTON, Warren Murry, Morriss Henry; COUNCILORS Eldon Fairley, Hugh Edwards, Paul Gray, L. J. Pat Bell, T. E. Townsend, John Wood, Robert McCrary, W. Payton Kolb, Ross Fowler, Stanley Applegate, A. S. Koenig. President Lewis Hyatt, President-elect L. A. Whittaker, Speaker J. P. Price, Vice Speaker Louis K. Hundley, Treasurer Ben Saltzman; PAST PRESIDENTS C. R. Ellis, Joe Verser, Wm. A. Snodgrass, James Kolb.

Speaker Price quoted the section of the Society constitution regarding the House of Delegates and declared that a quorum was present. He then called on President Hyatt for a brief explanation of the purpose of the meeting.

Speaker Price called on the Chairman of the Council, H. W. Thomas, for a report of the Council meeting held earlier in the day. Chairman Thomas presented the following report:

REPORT OF THE COUNCIL

The Council met at 9:30 a.m. on September 19, 1965, and transacted the following business:

1. Upon the motion of the councilors of the Eighth District, the Council elected John McCollough Smith to serve on the Professional Relations Committee for that district, replacing T. J. Raney, deceased.
2. Upon the motion of Saltzman and Koenig, the Council voted to authorize expenses for travel of a committee member to a meeting on Civil Defense and Disaster Relief in Chicago.

3. After hearing a discussion of the need for active participation by physicians on the Hospital-Insurance-Physician committee (HIP), the Council voted to authorize the chairman of the Council to appoint a new committee suggesting that the committee be enlarged to include one member from each councilor district.
4. A. S. Koenig discussed the possibility of having Arkansas Blue Cross-Blue Shield designated as the administering agent for Part "B" of the new Medicare Law. Upon motion of Koenig and Saltzman, the Council voted 14 to 1 to authorize Blue Cross-Blue Shield to say that the Medical Society approved its being so designated. Upon the motion of Shuffield and Kennedy, the Council voted that if Blue Cross-Blue Shield is unsuccessful in being appointed the administering agent, the Arkansas Medical Society attempt to be appointed as the administering agent for the program.

Dr. Thomas moved adoption of the report.

Louis Hundley made a substitute motion that the report be approved with the exception of Item 4. Second by James Kolb. The substitute motion passed by unanimous oral vote.

Dr. Hundley then spoke regarding the administering of the new Medicare Law. He moved that the action of the Council taken earlier in the day be disapproved and that the matter be referred back to the Council for further study and recommendation. Second by McCrary. Dr. Koenig discussed the provisions of the Law and the possibility of the Medical Society qualifying as the administering agent. He requested that Mr. Sam Butler of Arkansas Blue Cross-Blue Shield be allowed the privilege of the floor to discuss this aspect of the Medicare Law. Mr. Butler stated that it was his understanding that it provides for an insurance-bid basis proposition by whoever is agent. Dr. Koenig moved that, in view of this additional information, this item be tabled for this meeting. Second by Hyatt. Motion carried. There was one vote of opposition.

For informational purposes only, Dr. Koenig again read a letter regarding regulations of the program, and answered questions from those present.

The delegate from Ouachita County, Bruce Ellis, presented the following resolution:

OUACHITA COUNTY RESOLUTION

SUBJECT: To establish a schedule of fees under the present Kerr-Mills Program in Arkansas.

WHEREAS, HR 6675 has now been passed into Public Law 89-97;

WHEREAS, the Arkansas Legislature has appropriated 50 million dollars for the biennium 1965-67 for the implementation of the Kerr-Mills Program;

WHEREAS, the AMA House of Delegates annual session in New York 1965 resolved that the *Regular Fees* for medical services rendered be paid for in the forthcoming Medicare Program;

THEREFORE, BE IT RESOLVED that a fee schedule based on the California Relative Value Scale be established for office calls, hospital care, surgery, house calls, and for medical care in nursing homes.

Bruce Ellis moved adoption of the resolution, second by Kenneth R. Duzan.

H. W. Thomas pointed out that federal monies appropriated for the Kerr-Mills Program must be matched by State funds and that this limits the amount available in Arkansas. He referred to the "50 million dollars appropriated by the Legislature for the 1965-67 biennium" as a figure considerably higher than that actually available. Upon motion of Thomas and Lee Parker, the House voted to table the resolution. There were eight votes against tabling. Joe Verser spoke briefly concerning a recent appointment to the Healing Arts Board and urged members of the Society to work for the appointment of well-qualified persons to the board.

John McCollough Smith spoke briefly concerning the cancer detection campaign currently being co-sponsored by the American Academy of General Practice and the United States Public Health Service.

Upon motion of Hyatt and Saltzman, the House of Delegates authorized the officers of the Society to write letters to the Nominating Committee of the Woman's Auxiliary to the American Medical Association recommending Mrs. C. C. Long of Ozark for elective office in the national auxiliary.

The House adjourned at 4:10 p.m.

J. P. Price, Jr., M.D. Speaker, House of Delegates

STATEMENT OF POLICY FOR INFORMATION OF THE ARKANSAS MEDICAL SOCIETY REGARDING PUBLIC LAW 89-97

TITLE I

PART I. Participation.

Public Law 89-97 is a fact. All licensed physicians may participate. However, there are no provisions of this law that require any doctor to participate in the program, and the law as written applies only to people 65 years of age or older—regardless of need. The public law consists of two parts:

- "A" is hospitalization, rest home care, extended care provisions—and has no direct bearing on physicians' services;
- "B" is an insurance program in which the recipient of government aid pays \$3 per month which is matched by a similar amount by the federal government.

Under ordinary circumstances, the individual physician, acting independently, is ethically free to select his patients:

1. He may continue to give emergency treatment where needed in accordance with accepted medical ethics;
2. He may participate and accept the terms of the Medicare contract;
3. He may decline to render medical services to persons covered by the health-insurance-for-the-aged act;
4. He may choose to treat such persons without charge;
5. He may treat patients with the advance understanding that he will look to them exclusively for payment and that he will or will not in any way help them in obtaining reimbursement for the cost of his services, or the cost of associated services.

If a physician decides not to participate in the Medicare Program or decides to limit his participation, he should advise the patient in advance of treatment. This applies to services rendered by the physician as well as hospital services and other benefits provided under the program. If, after regulations are promulgated and the Medicare Law becomes effective, the individual physician, acting independently, and not in concert with others, finds it does tend to impair the free and complete exercise of his medical judgment and skill or to cause a deterioration of the quality of medical care, the individual physician would be justified under this principle in not participating

under the law. The physician is ordinarily free to select his patients subject to such ethical and other limitations as previously stated.

PART II. Payment to Vendors of Service

This may be done by two methods. One method is the assignment method in which the patient assigns his benefits to the physician. This assignment then provides a contract under which the physician will provide his services on a fee-for-service basis, signing his name to a document that he will not charge the patient any more than the service contract allows. The patient must then be responsible for the deductible features that are stated in the law.

The alternative method of payment is for the patient to obtain a receipted bill as having paid in full his obligation to the physician, and then presenting this receipted bill to the proper government agency who will reimburse him at the rate of 80% of the paid bill, less the deductibles that are incorporated in the law. Since the age group selected has not been designated as charity cases, there is every reason why they should be charged the usual and regular fees for whatever services the physician decides and not at a reduced or charitable fee.

PART III. Utilization Committees.

It is recommended that wherever possible, a utilization committee be appointed for hospitals, extended care facilities, rest homes, and other such institutions, consisting of physicians and in adequate number to provide the proper service to the individual institutions served. It is recommended that these committees be representative of the specialties that would be involved with this age group, as well as a doctor from general practice.

Part of the duties of the utilization committee would be to determine the medical need for hospitalization, the length of stay, and the proper treatment and medication for that patient. Under some circumstances, this committee might judge that the patient had received sufficient care and it may be empowered to recommend the stopping of federal funds for continuing their hospitalization and the patient remain in the hospital at his own expense.

PART IV. Compliance

Title VI of the Civil Rights Law, in the past, has required that physicians sign the compliance to the effect that they will not discriminate against any patient because of race, color, or national

origin. The Secretary of the Department of Health, Education and Welfare has informed several states that in lieu of the signing of a compliance statement, the bill for payment will now carry a statement spelling out that no persons in the United States shall, on the grounds of race, color, or national origin, be subject to discrimination, in any program or activity receiving federal assistance. This is a softer language for compliance.

PART V. Carriers

For Part "B" of Public Law 89-97, the law provides that a designated agency from each State shall negotiate with the Department of Health, Education, and Welfare for the provision of carrying out the purposes of the intent of the act. It is recommended that the State Medical Society be its own negotiating agent and that if proper arrangements may be made with Blue Cross-Blue Shield, or any other carrier, it would be the disbursing agent and carry on the mechanical activities in preparing claims and providing the paper work.

Your Medical Society is well aware that planning for the future of medicine should be an integral part of planning for the future of our state Medical Society and communications with the individual members as well as county medical societies should be done in a manner that keeps every member well aware of all activities, government and otherwise, that are going forward.

All physicians are urged to support and assist AMPAC, and local political action committees in their efforts to elect candidates to office who will help preserve the physicians' right to the free and independent practice of medicine. Because we believe that a government strong enough to give you everything you want is powerful enough to take away everything you have.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS AS AMENDED AND ADOPTED

by

AMA House of Delegates Special Convention
Chicago, Illinois
October 3, 1965

Mr. Speaker and Members of the House of Delegates:

Your Reference Committee recognizes the serious nature of the problems before this body and the decisions that must be made on this day—decisions which will affect the future of the prac-

tice of medicine for generations to come.

Your Committee heard 125 witnesses speak to twenty separate subjects during seven and one-half hours of testimony. Each witness spoke earnestly, forcefully, temperately, and with personal concern for the welfare of the patient in these United States.

Because of the special nature of the subjects presented to this Special Convention and the interrelationship of the resolutions considered, your Reference Committee, in lieu of dealing with each resolution separately, has considered the intent and the language of all the resolutions. We believe it would be more expedient and practical to present for adoption by this House of Delegates a series of numbered comments, principles and policies which express the position of the American Medical Association on the issues under consideration.

Mr. Speaker, we have endeavored to evaluate, carefully and objectively, the matters before your Committee, and offer the following recommendations:

1. *Physician-Patient Relationship.* Public Law 89-97 affects the legal, traditional, and ethical concepts of the physician-patient relationship.

Legal counsel for the American Medical Association has stated that an individual physician acting independently and not in concert with others can lawfully refuse to accept any person as a patient who is a beneficiary under the program, or he may elect to treat such persons.

Accepted for information

In response to a request for an opinion by the Speaker, the Judicial Council, on October 1, 1965, rendered the following opinion:

The *Principles of Medical Ethics* are applicable to physicians when they engage in group action as well as when they act individually. Section 4 calls upon physicians to observe all laws. Accordingly, medical organizations must be mindful of the possible consequences of the actions they propose, engage in or encourage.

Under ordinary circumstances, the individual physician acting independently, is ethically free to select his patients. (See Section 5 of the principles) (a) He may decline to render medical services to persons covered by the "Health Insurance for the Aged Act." (b) He may choose to treat such persons without charge. (c) He may treat patients with the advance understanding that he will look to them exclusively

for payment and that he will or will not in any way help them in obtaining reimbursement for the cost of his services or the cost of associated services.

However, under some circumstances, the physician's freedom to select his patients may be circumscribed by overriding ethical considerations. For example:

1. A physician should respond to any request for his assistance in an emergency.
2. Once having undertaken a case, the physician should not neglect the patient, nor should he withdraw from the case without giving notice sufficient to allow the patient to obtain another physician.
3. If a physician decides not to participate in the Medicare program or decides to limit his participation, he should so advise the patient in advance of treatment. This applies to services rendered by the physician as well as hospital services and other benefits provided under the program.
4. As provided in Section 1 of the *Principles of Medical Ethics*, a physician should not refuse to render medical services to any person if as a result such person will be unable to get necessary medical care.

It should be noted also that Section 6 of the Principles provides that "A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause the deterioration of the quality of medical care." If after regulations are promulgated and the Medicare law becomes effective, the individual physician acting independently and not in concert with others, finds it does tend to impair the free and complete exercise of his medical judgment and skill or to cause a deterioration of the quality of medical care, the individual physician would be justified under this Principle in not participating under the law. The physician is ordinarily free to select his patients, subject to such ethical limitations as previously stated in Section 6 of the *Principles of Medical Ethics*, the Bauer Amendment, and in keeping with the nine principles for standards of health care programs adopted 3-1965.

Accepted for information

In accepting the Judicial Council's opinion, as reported by the Reference Committee, the House called attention to the fact that this opinion should be read together with the Bauer Amendment (A-1961) and the nine principles for standards of health care programs adopted A-1965; and that these two items be distributed with the Judicial Council's opinion on the ethics involved in physician participation or non-participation in the Health Insurance for the Aged Act.

Mr. Speaker, your Reference Committee believes that it is desirable for this House to adopt a statement of policy regarding the traditional physician-patient relationship as it relates to Public Law 89-97. Mr. Speaker, we recommend that the following statement be adopted:

The American Medical Association opposes any program of dictation, interference, or coercion, whether direct or indirect, affecting the freedom of choice of the physician to determine for himself the extent and manner of participation or financial arrangement under which he shall provide medical care to patients under Public Law 89-97.

Adopted as Amended

II. Regulations Under Public Law 89-97. It was clear from the testimony received by your Reference Committee that the medical profession has a vital interest in the regulations which are to be promulgated under Public Law 89-97. Hastily drawn, unrealistic regulations could aggravate even further the undesirable effects of this law. Mr. Speaker, we recommend the adoption of the following statement as the present position and policy of the American Medical Association:

(a) The American Medical Association shall continue to meet with representatives of agencies and departments of the Federal Government, to participate in such advisory committees which are created, and to contribute whatever advice and suggestions are deemed advisable and necessary in the formulation and revision of regulations which will help it achieve Medicine's objectives on behalf of the public and the profession.

(b) The American Medical Association urges every physician, regardless of the

extent of his involvement, to render whatever advice and assistance he can so that regulatory changes and/or legislative modifications may be suggested or sponsored by the American Medical Association in order that the best interests of the public and the profession may be protected in the provision of medical care.

(c) This House of Delegates expresses confidence in the Board of Trustees of the American Medical Association, its Advisory Committee, and the three-man Consultant Committee on Public Law 89-97 for their continuing efforts to secure regulations which are in the best interests of good patient care.

Adopted as Amended

* * * * *

Mr. Speaker, your Reference Committee next considered a number of items related to the primary subjects under consideration:

III. Certification by Physicians. Your Reference Committee recommends the adoption of the following statement of policy:

Current practices and customary procedures with respect to certification for hospital admission and care shall be continued under Public Law 89-97. The AMA Advisory Committee and the Association representatives to the technical advisory committees are advised to seek to accomplish this objective.

Adopted

IV. Blue Shield as Intermediary. Regulations yet to be promulgated will identify the nature of intermediaries under Public Law 89-97. Your Committee offers the following statement:

Blue Shield has, in many areas, demonstrated its ability to provide a competent insurance program. However, the AMA should leave to the state or appropriate local medical society, as the case may be, the expression of any preference for selection of a carrier.

Adopted

V. Reasonable Fees. Concern was expressed with respect to possible disputes between physicians and carriers relative to reasonable fees under the provisions of Public Law 89-97. We recommend the following statement of policy:

In the event of a dispute between physicians and carriers with respect to reasonable, customary, or usual fees, such disputes shall be re-

solved with the participation of the appropriate local medical society.

Adopted

VI. Utilization Review. Differences of opinion as to the purpose of utilization review committees were expressed. However, there was general agreement that with respect to the composition of such committees, the limitation of membership to include only physicians is preferred. Accordingly, we recommend the following statement to the House:

Hospital utilization review committees shall be composed of practicing physicians.

Adopted as Amended

Your Reference Committee understands that the Council on Medical Service will conduct a conference on the subject of utilization review committees on November 27 in Philadelphia. Recognizing the importance of this subject matter, your Reference Committee recommends that Resolutions No. 8, 18, and 35 be referred to the Council on Medical Service with instructions that the Association's Advisory Committee as well as the Board of Trustees and the House of Delegates be kept informed of developments in this area.

Adopted

VII. Compensation for Medical Services. Your Reference Committee believes that the physician should be informed fully as to the merits and limitations of billing patients directly for services, or accepting an assignment to enable payment by a federally designated fiscal intermediary, so that the physician can decide for himself in each instance the method of compensation which he prefers. We recommend that the Association take appropriate action to inform physicians regarding the options of payment for services available to them under the law and its regulations.

Adopted as Amended

VIII. Shortage of Hospital Beds. The Oregon Delegation requested a survey of the probable shortage of hospital and related facility accommodations which may occur as a result of the implementation of Public Law 89-97. It also called for the development of a mechanism under which sufficient accommodations for the acutely ill, injured, or those in need of elective procedures will be reserved.

It is your Reference Committee's understanding that this subject is under active consideration by the Council on Medical Service. Your Committee accordingly recommends that this matter

be referred to the Council for appropriate action.

Adopted

IX. Legal Opinion by AMA Counsel. Your Reference Committee was greatly impressed by the candid, forthright presentation by Mr. A. Leslie Hodson, legal counsel for the American Medical Association. We believe that his remarks should be made available to all constituent associations for their information and study. We believe that this will engender a better understanding of the legal limitations which face all medical organizations and the medical profession. Your Reference Committee recommends that the remarks of Mr. Hodson be distributed to the constituent associations.

The House instructed the Board of Trustees to implement this action at the earliest possible date.

X. Non-Discrimination Under Federally Assisted Health Care Programs. Witnesses testified that a number of state agencies require pledges of non-discrimination for the ostensible purpose of meeting the requirements of title VI of the Civil Rights Act. Comments received were justifiably bitter in view of the profession's record of non-discrimination in patient care.

Your Reference Committee has been informed that the Department of Health, Education, and Welfare has recognized the injustice of these state agency requirements and has recommended a substantial modification of this practice. Your Reference Committee believes that this matter should receive continuing surveillance.

Although the Reference Committee recommended that this subject be referred to the Board of Trustees for continuing study by the Association's Law Department, the House did not concur and, in response to a motion from the floor, adopted Resolution No. 1. (Resolution No. 1 attached)

XI. Separation of Professional Fees and Hospital Charges. Mr. Speaker, we offer the following statement of policy for consideration by the House:

Hospital-based medical specialists are engaged in the practice of medicine. The fees for the services of such specialists should not be merged with hospital charges. The charges for the services of such specialists should be established, billed and collected by the medical specialist in the same manner as are the fees of other physicians. The American Medical Association intends to continue vigorously its efforts to prevent inclusion in the future of the profes-

sional services of any practicing physician in the hospital service portion of any health care legislation.

Adopted as Amended

Mr. Speaker, the policy statements herein presented to the House for its action are intended to respond to the specific problems placed before this Reference Committee. We are certain that more definitive statements on Public Law 89-97 will be adopted by this House as regulations are promulgated and as the program is implemented. But lest we be misunderstood, your Committee wishes to clearly emphasize that none of its recommendations should be construed as approval of Public Law 89-97, or in any way as acceptance of its philosophy.

Dr. James Z. Appel, in his remarks as President, told of his awareness of the problems before us. Dr. Appel spoke in his own behalf, but his comments reflect your Committee's feelings as well.

We congratulate him on his statesmanlike presentation, and we commend to each delegate the written transcript of his remarks.

Dr. Appel reminded us that, "Ours is a profession which must remain unified." "Ours is a profession which *must* remain unified," echoed many a speaker before your Reference Committee. These expressions of unity were voiced time and time again.

How shall we best maintain unity?

The Board of Trustees, in its report to this House, detailed in chronological order its efforts and experiences since the Annual Convention in June 1965. Your Committee heard many witnesses testify to the good work of the Board, to its devotion, and to its strength during these difficult times. To these unanimous expressions of confidence, your Committee adds its own. But we would not stop here. The leadership of the American Medical Association has been tested under fire. In difficult and crucial times, our officers and the Board have responded to legislative crises with courage and conviction. Years of withstanding the onslaught of the Medicare proponents did not weaken or lessen the determination of our officials.

The enactment of Public Law 89-97 would have come long before were it not for the leadership of our Board and Officers.

Nor should we fail to gratefully acknowledge the dedication, the inexhaustible effort, and the guidance provided by Dr. Blasingame and Dr. Howard, our Executive and Assistant Executive

Vice Presidents.

We believe that the members of this House of Delegates would profit from a current report of the Association affairs, its programs, facilities, and personnel. Mr. Speaker, your Reference Committee recommends that Dr. Blasingame be invited to make such a presentation at the Clinical Meeting in Philadelphia.

Adopted

Mr. Speaker, before closing this report, your Committee would acknowledge some additional testimony received during the course of its hearing. Some speakers complained of inadequate knowledge of the activities of the Board, Councils and Committees of the Association. We believe that wherever the fault may be found, it must be shared by many. Undoubtedly, the Association should strive to continue to improve all means of communication available to it so that each physician member will be kept well informed on important matters. But each physician must be willing to receive the information beamed his way—through news releases, the weekly *AMA News*, and other AMA journals, publications, and communications. Finally, some of the fault must be shared by those state societies, or local medical societies, who at times receive the news from the AMA but fail to relay it to their members.

In Resolution No. 3 and in other remarks of witnesses, the Board and the House of Delegates were asked to consider the need for long-range planning. Your Committee believes that planning for the future should be an integral part of the activities of each AMA Council and Committee, as well as of the Board. While we realize that planning is a continuing and on-going program in the AMA, we would urge that the Board of Trustees take steps to assure that efforts in this regard be stressed even more by the Councils and Committees. Society is in constant flux and the American Medical Association must be prepared to meet the challenge of our times.

In still other remarks, the need for active physician participation in political activity remains clear. Your Reference Committee recommends that the House urge constituent medical societies and physicians to support and assist AMPAC and local medical political action committees in their efforts to elect candidates to office who will help preserve the physician's right to the free and independent practice of medicine.

In conclusion, Mr. Speaker, the members of

your Reference Committee have been privileged to act in the capacity assigned to them. We know that in these trying times, the physicians of America will stand together and serve together in the best interests of their patients.

As a point of personal privilege, Mr. Speaker, I wish to express my gratitude to each member of the Committee for his patience, and for his diligent effort in discharging the monumental task assigned to him.

Submitted by:

George J. Lawrence, Jr., M.D., New York

George W. Petznick, M.D., Ohio

Harvey Renger, M.D., Texas

John M. Rumsey, M.D., California

B. E. Montgomery, M.D. Illinois, Chairman

* * * * *

OTHER HOUSE ACTION

The House recommended that tape recordings of Dr. Edward Annis' presentation before the National Orientation meeting held October 1, 1965, be made available to any member of the Association upon request at a cost basis (to be paid by person requesting tape).

BAUER AMENDMENT

ADOPTED — A-61

The House of Delegates of the American Medical Association records its opposition to any legislation of the King-Anderson type. Its opposition is based on the facts that such legislation does not meet the needs of the situation; interferes with the doctor-patient relationship; interferes with the rights of doctors employed in hospitals; is inordinately expensive; leads inevitably to further encroachments by government into medical care; results eventually in a deterioration of the type of medical care rendered the public; and is therefore detrimental to the public interest.

The House of Delegates invites attention to the fact that the medical profession is the only group which can render medical care under any system and that the medical profession is best qualified to determine how the best medical care can be delivered.

The House of Delegates believes that the medical profession will see to it that every person receives the best available medical care regardless of his ability to pay, and it further believes that the profession will render that care according to the system it believes is in the public interest and that it will not be a party to implementing any system which we believe to be detrimental to the public welfare.

NINE PRINCIPALS FOR STANDARDS OF HEALTH CARE PROGRAMS

Adopted S-65

- (1) No person needing health care shall be denied such care because of the inability to pay for it.
- (2) It is appropriate that government revenues be used to finance health care when other resources have been found to be inadequate.
- (3) Every level of government, municipal, county, state and federal, should assume a responsible share in the financing of such programs.
- (4) The health care provided by such programs should be adequate and should be equal to that available to those who can afford to pay.
- (5) Maximum use should be made of voluntary prepayment and insurance mechanisms.
- (6) Administration of such program should be the responsibility of the state government. Participating states should be required to meet adequate standards of administration in order to qualify for federal funds.
- (7) Eligibility requirements for benefits should be fair, realistic, uncomplicated and practical.
- (8) Any such health care programs should provide funds only, and not direct services.
- (9) Funds for such programs may come from general tax revenues and not from social security taxes.

PLEDGE OF NON-DISCRIMINATION

Whereas, The Department of Health, Education and Welfare has attempted to force physicians treating patients under federally-assisted programs to sign pledges of non-discrimination; and;

Whereas, Physicians, by subscribing to the Principles of Medical Ethics, willingly pledge to render service unconditionally to all patients with full respect for the dignity of man, providing for each a full measure of service and devotion, including in time of war the provision of medical care to the captured enemies of our country; and

Whereas, These conditions willingly self-imposed by the medical profession far exceed any pledge of this nature demanded by a Federal bureaucracy; therefore be it

Resolved, That all physicians are hereby informed that the refusal to sign such an oath does not flout the law; and be it further

Resolved, That the House of Delegates directs the Board of Trustees and the Officers of this Association to oppose actively and forcefully this and any future attempts by HEW or any other Federal agency to impose conditions and pledges upon the medical profession.

THINGS TO COME



Thirty-Ninth Annual Spring Congress in Ophthalmology and Otolaryngology

The Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Virginia, announces its Thirty-Ninth Annual Spring Congress in Ophthalmology and Otolaryngology, April 4 through April 8, 1965. For further information write: Superintendent, Post Office Box 1789, Roanoke, Virginia.

1966 Scientific Session of the American Cancer Society

The 1966 Scientific Session of the American Cancer Society will be held in the St. Francis Hotel, San Francisco, California, May 11, 1966. Sessions are open to all members of the Medical and Dental Professions and students.

University of California Training Programs

The University of California School of Public Health at Berkeley has several Training Programs of interest to physicians. They are:

1. Basic Training in Maternal and Child Health.
2. Training in School Health.
3. Training in Mental Retardation and Related Conditions.

4. Training in Family Planning.

5. Combined Pediatric — Public Health Training (Career Development Program)

Applications are now being accepted for the group to be admitted in September, 1966.



OBITUARY

DR. CLARENCE LEROY GLENN

Dr. Clarence L. Glenn, aged 42, of Fort Smith, died September 26th, 1965. He had been associated with Holt-Krock Clinic for all of his twelve years of practice. He was a graduate of the University of Arkansas and University of Arkansas Medical School. He was a deacon and member of First Presbyterian Church; a World War II veteran; a member of the American Medical Association, the Arkansas Medical Society and the Sebastian County Medical Society; he was on the board of directors of the Arkansas Academy of General Practice. Survivors include his widow, two sons and a daughter.

DR. HARLAN HILL

Dr. Harlan Hill, 51, a Little Rock physician, accidentally shot and killed himself while hunting on October 6th, 1965. He was a native of England, Arkansas, and had practiced obstetrics in Little Rock since his release from the Army in 1946. He was a 1942 graduate of the University of Arkansas School of Medicine. He was a member of the Pulaski County Medical Society, Arkansas Medical Society, American Medical Association and the American College of Obstetrics and Gynecology. He was currently vice president of the Arkansas State Horse Show Association. He was a Methodist. He is survived by his widow and four sons.





PERSONAL AND NEWS ITEMS

AAGP Meets in Little Rock

The Arkansas Academy of General Practice held its annual meeting in October at Little Rock, with faculty members from the Baylor University School of Medicine presenting the scientific program. Dr. John P. Price of Monticello was installed as president. He also is speaker of the House of Delegates of the Arkansas Medical Society. Dr. John McCollough Smith of Little Rock was named president-elect and Dr. T. D. Honeycutt of Little Rock was re-elected secretary-treasurer.

New Doctor For Des Arc

Dr. Bobby Bethell has opened a clinic in Des Arc for the practice of medicine. He is a 1963 graduate of the University of Arkansas Medical School and he is the brother of Dr. John P. Bethell of Stuttgart.

Dr. Stevens to Arkadelphia

Dr. David G. Stevens has recently become associated with the Clark County Memorial Hospital in Arkadelphia. Dr. Stevens is a radiologist and he previously practiced at Houston, Texas.

Drs. Elected to AAGP

Dr. James D. Armstrong, Dr. Norman W. Peacock, Jr., and Dr. Joseph G. Shelton, Jr., of Ashdown, have been elected to active membership in the American Academy of General Practice.

Dr. McVay Honored

Dr. L. C. McVay, aged 90, one of Crittenden County's oldest residents has been honored for 50 years of membership in the Masonic fraternity. He was presented a 50-year Masonic pin in special ceremonies in West Memphis in October.

Dr. Schwartz Practices in Searcy

Doctors Thomas A. Formby, William J. Mattox and Jack R. Gardner of the Searcy Clinic in Searcy announce the association of Dr. Stanley S. Schwartz. Dr. Schwartz is a native of Clarksdale, Mississippi, and he received his M.D. degree from the University of Tennessee School of Medicine.

Nurses Meet in Fort Smith

The Arkansas State Licensed Practical Nurses' Association held its annual state convention in October in Fort Smith. Dr. L. A. Whittaker, president-elect of the Arkansas Medical Society, and Paul C. Schaefer, executive vice president, were speakers.

Dr. Hawley Honored

Dr. James Hawley of Camden was awarded a plaque in September from the Camden Practical Nurse School for his many years of service to the school.

Neurosurgeons Meet

The executive committee of the Neurosurgical Society of America held a board meeting in Little Rock in September. Dr. Robert Watson of Little Rock is president of the society.

Post-Graduate Session Held

The Arkansas Thoracic Society, Arkansas Tuberculosis Association and the University of Arkansas School of Medicine sponsored a post-graduate session on "Current Problems in Respiratory Disease" at the Medical Center in Little Rock in September. Dr. Richard Ebert, Dr. John Pierce, Dr. Gilbert A. Campbell, Dr. Robert Abernathy and Dr. Joe Norton, all of Little Rock, took part in the program.

Dr. Collins to Bolivia

Dr. E. Morgan Collins, Jr., a Forrest City physician, has been selected by the State Department for a trip to Bolivia which will be made under the auspices of the Alliance for Progress program of the federal government. He will spend his time in Santa Cruz where he will be working, observing, and exchanging ideas with Bolivian doctors.

Arkansas Graduate volunteers for Project Vietnam

Dr. Charles D. Nordlinger, a 1962 graduate of the University of Arkansas School of Medicine,

is in Vietnam as one of a group of physicians sent under the sponsorship of Project Vietnam to provide medical care for civilians injured in the war or suffering from natural causes. Project Vietnam is a co-operative medical effort of voluntary agencies, assisted by the American Medical Asso-

ciation and the Agency for International Development.

Dr. Fairley Candidate for School Board

Dr. Julian Fairley of Osceola announced his candidacy for the school board election in September.



PROCEEDINGS OF SOCIETIES

Union County

The Union County Medical Society awarded a nursing Scholarship check to Miss Fanny Bates

in September. Dr. A. J. Baker, president of the county society, presented the check to Miss Bates.



**NEW
MEMBERS**

DR. JAMES ARTHUR BROWN is a new member of Sebastian County Medical Society. A native of Ft. Smith, he received his preliminary education from the University of Arkansas. He then enrolled at the University of Arkansas School of Medicine and received his M.D. degree from there in 1956. He interned at the University of Arkansas Medical Center and has practiced two years at Rison, Arkansas. Dr. Brown is a neurosurgeon and his office address is 2702 Barry Avenue in Fort Smith, Arkansas.

DR. THEODORE K. TUCKER is a new member of the Washington County Medical Society. He is a native of Benton, Arkansas, and he received his preliminary education from the University of Arkansas. He obtained his M.D. degree from the University of Arkansas Medical School in 1951. He practiced from 1952 until 1964 in Magnolia, Ohio. Dr. Tucker is a general practitioner and his office is at 1031 North College Avenue in Fayetteville, Arkansas.

A new member of the Jefferson County Medical Society is DR. CARL W. NASH. A native of Arkadelphia, Arkansas, he received his pre-med from Ouachita Baptist University. He then enrolled at the University of Arkansas Medical School and was graduated from there in 1962. He interned at Hillcrest Medical Center in Tulsa, Oklahoma, and served in the U. S. Air Force from 1963-1965. Dr. Nash's office address is 1310 1/2 Cherry in Pine Bluff, Arkansas. He is a general practitioner.

Washington County Medical Society announces that DR. ROBERT A. ETHERINGTON is a new member. He was born at Malden, Washington, and received his preliminary education from Oklahoma A & M College and Oklahoma University. He received his M.D. degree from the University of Arkansas in 1948. He interned at Fitzsimons Army Hospital. Dr. Etherington served in the U. S. Army from 1948 until 1954. He is a general practitioner and his office address is 41 Kingshighway in Eureka Springs, Arkansas.

RESOLUTIONS



Pathologist Resolution

The House of Delegates of the College of American Pathologists recommended and the Board of Governors approved the following resolution having to do with the practice of pathology under the new Medicare Law:

"WHEREAS, Pathology has been repeatedly defined as an integral part of the practice of medicine, and

'WHEREAS, the House of Delegates of the AMA, at a recent meeting in Chicago, adopted the following statement of policy:

" 'Hospital based' medical specialists are engaged in the practice of medicine. The fees for the services of such specialists should not be merged with hospital charges. The charges for the services of such specialists should be established, billed, and collected by the medical specialist in the same manner as are the fees of other physicians," and

'WHEREAS, Public Law 89-97, the Medicare Program, provides for coverage of pathology in such a manner, and

'WHEREAS, it is desirable for payment of all pathology fees to be done in a uniform manner, now

'THEREFORE, BE IT RESOLVED, that it be the policy of the College of American Pathologists, that members of the College shall separate their professional fees from hospital charges and present their own bills to all patients expected to pay for services, and

'BE IT FURTHER RESOLVED, that hospitals shall not be designated as a billing agent for pathologists, and

'BE IT FURTHER RESOLVED, that pathologists set their fees according to the worth of their professional service, maintaining a zealous guard against abuses which would significantly increase the cost of medical care."

The resolution was presented to the Council of the Arkansas Medical Society by Arkansas Pathologists. The Council voted to commend the pathologists on their stand and to approve the policy expressed in the resolution.



BOOK REVIEWS

CURRENT SURGICAL MANAGEMENT III, edited by Edwin H. Ellison, M.D., Marquette University School of Medicine, Stanley R. Friesen, M.D. University of Kansas Medical Center and John H. Mulholland, M.D., New York University College of Medicine, pp. 519, published by W. B. Saunders Company, Philadelphia and London, 1965.

This interesting book of 519 pages has an unusual approach to surgical problems. Under each problem it gives alternative viewpoints. For example, under the treatment of Carcinoma of the Breast, radical mastectomy is discussed by Butcher, Crile discusses simple mastectomy with or without radiation, and Horsley and Horsley discuss prophylactic bilateral oophorectomy for the same disease. In short, the aim of this book is to present different viewpoints pertaining to a disease. Thirty different topics are discussed. There are usually two or three different authors for each topic. This is an interesting book but it is not recommended as a text. It will prove interesting to the practicing surgeon and to the residence surgeon. AK

THE MANAGEMENT OF FRACTURES AND SOFT TISSUE INJURIES by The Committee on Trauma, American College of Surgeons, Second Edition, pp. 365, published by W. B. Saunders Company, Philadelphia and London, 1965.

This is an excellent manual written by the Committee on Trauma of the American College of Surgeons. It is only 365 pages but it is a most valuable brief text on the subject. It would be impossible to condense this type of information into a more valuable or briefer text. It is highly recommended to medical students, house officers and general physicians. AK

HANDBOOK OF PHYSICAL MEDICINE AND REHABILITATION, Edited by Frank H. Krusen, M.D. Professor and Coordinator of Physical Medicine and Rehabilitation Temple University School of Medicine; Emeritus Professor of Physical Medicine and Rehabilitation, Mayo Graduate School of Medicine, University of Minnesota, pp. 725, illustrated, published under the Auspices of the American Rehabilitation Foundation by W. B. Saunders Company, Philadelphia and London, 1965.

This textbook is a compendium of articles by various authorities in the general field of Physical Medicine. It is

well illustrated. It is well written. There are numerous references. Of particular interest to the reviewer were the chapters on Decubitus Ulcers, Disorders of Respiration and Common Cardiovascular Problems in Rehabilitation. The book includes a description of different types of wheel-chairs, bed positioning, diathermy and other types of heat treatment, as well as several chapters on assessment of the physical disorder.

This book is heartily recommended as being outstanding in its field. AK

TUBERCULOSIS



ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

PULMONARY TUBERCULOSIS AMONG OLDER PERSONS

Evidence is presented that reactivation of a previous infection is a plausible explanation of the pathogenesis of chronic pulmonary tuberculosis even when it appears for the first time in an older person. No evidence was found to suggest exogenous reinfection in such a person.

WILLIAM STEAD, M.D. *The American Review of Respiratory Diseases*, June, 1965.

An important factor in the continuing existence of tuberculosis in the population is the older person with active pulmonary tuberculosis. Some cases among older people are reactivations of previously known tuberculosis, but often there is no history of such a previous episode.

It is important to recognize active tuberculosis in older persons because such persons may endanger children, or, if in a nursing home, may be cared for by young adults who are tuberculin negative.

In the present study, an attempt has been made to gather two types of information: (1) the frequency with which a recent close contact with an open case of tuberculosis could be found as a source of infection in persons with primary tuberculosis, whether child or adult, compared with finding the source contact in older persons, with active chronic pulmonary tuberculosis of

recent onset; (2) the frequency with which evidence could be found of the previous existence of tuberculosis in the older person as revealed by roentgenograms made at least a year before hospital admission.

Frequency of recent close contact with open tuberculosis was elicited in three groups of patients:

Older adult patients. In 102 cases of active pulmonary tuberculosis in persons 50 years of age or older, only 5 patients had a significant contact with an open case within the past several years.

Children with predominantly primary tuberculosis. In a group of 136 children admitted to the sanatorium, significant close exposure to a case of contagious tuberculosis was found to have occurred within the previous year in 112 (82 per cent).

Adults with primary tuberculosis. The cases of 30 young adults (aged 17 to 30) with primary tuberculosis were reviewed. This was to combine the factor of being adult with the factor of primary infection in order to eliminate the possibility of endogenous reinfection as the mechanism.

Tuberculosis was deemed to be primary if the date of conversion of the tuberculin skin test was known to be recent or if the lesion was strictly limited to a portion of the lung commonly af-

WILLIAM STEAD, M.D. *The American Review of Respiratory Diseases*, June, 1965.

fected by primary tuberculosis. Close contact with an open case of tuberculosis within the previous year was established for 20 (67 per cent) of the 30 adults.

Statistical analysis of these data revealed no significant difference in incidence of source cases for primary infection between children and adults. A high degree of significance could be attached to the much lower incidence of recent re-exposure among the older adults.

The time-honored explanation that an adult has contact with so many persons as to make it extremely difficult to locate the one responsible for the "reinfection" appears to be untenable. When endogenous reactivation was eliminated from consideration in the adult patient, the source of infection was established in a high proportion of cases.

REINFECTION UNLIKELY

The unlikelihood of reinfection in the majority of these cases suggested that reactivation of old disease might account for more of the cases of newly discovered active tuberculosis among older adults than is generally thought.

To evaluate this possibility, the records of 445 patients admitted to the sanatorium during a 12-month period were studied. Among 102 patients 50 years of age or older who had chronic pulmonary tuberculosis, 12 cases were reactivations of known adult lesions which had been treated from 7 to 50 years previously.

In the remaining 90 patients, no history of previous tuberculosis could be elicited. In only 5 of these was there a recent exposure to open tuberculosis. Roentgenographic evidence of antecedent disease had been present for at least one year in 51.

The observations reported offer nothing in support of exogenous reinfection and provide evidence that unrecognized latent tuberculosis is often present for years before the development of the first clinical episode of the disease in persons more than 50 years of age.

In primary tuberculosis for which an exogenous source of bacilli is necessary, it was possible to identify the source of bacilli in the majority

of cases in adults as well as in children. Thus the reason for the difficulty in identifying sources of "reinfection" appears to be that re-exposure is not related to the development of active tuberculosis in a person who has been infected in the past. Casual contacts are unlikely to cause primary infection, much less reinfection.

Reactivation of dormant foci of previously unrecognized tuberculosis seems even more plausible as an explanation for tuberculosis in the older adult when considered with the fact that roentgenographic evidence of pre-existing tuberculosis was found in 72 per cent of older persons experiencing their *first* clinical episode of the disease.

In a large number of these persons, there was evidence of pre-existing scars on the lung from which reactivation might have occurred (often referred to as Simon foci).

SIGNIFICANT SCARS

The origin of such scars has been the subject of debate for many years. Many have considered such scars abortive episodes of post-primary tuberculous foci which should not be considered abnormal. However, the observations in this study suggest that even though they remain unchanged for years, they should be regarded as potential sources for reactivation of tuberculosis during subsequent periods of stress, hormonal changes, and advanced years.

Factors frequently related to reactivation have been old age, alcoholism, cortisone therapy, diabetes, silicosis, major gastric resectional surgery, and chronic illness due to a low-grade malignancy.

As improved and more refined techniques are sought for the control of tuberculosis in the community, more attention should be focused upon tuberculin reactors whose roentgenograms reveal scars, whether there is a history of tuberculosis or not. While a reactivation of tuberculosis occurs in only a small portion of such persons in a given year, each reactivation may delay eradication of tuberculosis by planting bacilli in a new victim.

Infection of tuberculin-negative contacts can only be prevented by detection and treatment of reactivations before liquefaction necrosis develops with dissemination of organisms into the environment.

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

January, 1966

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ARKANSAS MEDICAL SOCIETY
HOT SPRINGS, ARKANSAS, MAY 1-4, 1966**

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(1) Frykman, H.M.: *Minn. Med.*, Vol. 38, Jan. 1955. (2) Poth, E.J.: *The J.A.M.A.*, Vol. 163, No. 15, April 13, 1957. (3) McGivney, J.: *Texas State Jour. of Med.*, Vol. 51, No. 1, Jan. 1955. (4) Stern, F. H.: *Jour. of The Amer. Ger. Soc.*, Vol. 11, No. 3, Mar. 1963. (5) Weekes, D. J.: *N.Y. State Jour. of Med.*, Vol. 58, No. 16, Aug. 1958. (6) Abbott, P.L.: *Jour. of Oral Surg., Anes. & Hosp. Dental Serv.*, Vol. 19, July 1961. (7) Weekes, D. J.: *E.E.N.T. Digest*, Vol. 25, No. 12, Dec. 1963.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579-P to be sent to Arkansas Medical Society, 218 Kelley Building, Fort Smith, Arkansas 72902. Published monthly under direction of the Council, Arkansas Medical Society, Vol. 62, No. 8. Subscriptions \$3.00 a year. Single copies 50 cents. Entered as a second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

An Address Given at the Dedication of The Davis Woolf Goldstein Library

Harold O. Perry, M.D.*

To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all."¹

It is indeed a privilege for me to be here, among many old friends and many new acquaintances, to participate in this dedication of the Davis Woolf Goldstein Library. Such an occasion occurs rarely during a lifetime, and some men never

are privileged to have this experience.

In these days of rapid technical and scientific advancement, time becomes the essence of progress. There is not time enough for young scientists to recapitulate the experimentation and personal experiences of scientists of the past. It is only through a search of what has been written that independent thinking young men become acquainted with the progress made in the past and prepare to create the wonders of the future.

Presented at the University of Arkansas, Little Rock, April 24, 1965.



Left to right: Dean Shorey, Dr. Goldstein and Storm Whaley.

*Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

The words of Ray R. Kracke,² when he evaluated the University of Alabama Medical School, are appropriate: "A medical school is just as good as its library."

The recipients of this dermatologic library must recognize that, for progress in the future, this library gives added stature to this university as a center for medical education and research and progress.

My association with the Mayo institutions makes me fully appreciate what can be accomplished when men of vision apply their talent to a problem. Dr. William J. Mayo, one of the founding fathers of the Mayo Clinic and Mayo Foundation, had this to say about the importance of a medical library: ". . . I believe that the atmosphere of books is one of the most formative factors in the development of young minds."³ For the advancement of medical education generally, and dermatologic education more specifically, the gift of this library will provide the tools by which young minds of medicine may participate in these advances.

There are few among us in the medical profession who by original contributions in basic fields become Nobel laureates. These individuals are rare. Most often, as we look at our medical colleagues, we recognize them to be individuals happy to "ply their trade" in medical practice by seeing patients day in and day out and ministering to their immediate needs. Certainly, the work of such men is important.

But what manner of man is this, who has visions of progress to be made—of feats to be accomplished—of work yet to be done? What manner of man is this who, despite the slowing of his gait and the whitening of his hair, still has the acuity of vision, the insight of possible greater accomplishments, to provide a focus within the university so that medical progress may not only continue but be advanced?

Davis Woolf Goldstein has led an interesting life and has been permitted to live during a period when great transitions and great strides have been made in the medical sciences. A Southern boy, he was born in Mississippi in 1888. He studied pharmacy at Tulane University and was licensed to practice by the Mississippi State Board of Pharmacy. From his contacts at Tulane, he became interested in medicine; and, with the encouragement and help of his family and of two

physicians on the faculty of the University of Tennessee [College of Physicians and Surgeons], he entered that medical school in 1906. While there, he led a "Horatio Alger, Jr.," life working in the chemistry laboratory and at the local drug-store to pay for his tuition. He was graduated from medical school in May 1910.

During his last year of medical school, he became interested in dermatology. At the time of his medical graduation, no resident training opportunities in dermatology as we know them today were available; thus, like others who wished to specialize in diseases of the skin, he went to Europe to visit the dermatologic clinics on the continent and in England: In Vienna, he spent 3 months at the Ruhl, Finger, and Oppenheim skin clinics; later he went to London and studied in the London General and Saint Mary's Hospitals. It was in London that he became personally acquainted with Sir Alexander Fleming. After 8 months abroad, he returned to the United States where for the better part of the next year he studied with Drs. J. F. Schamberg and Rose Hirschler at the Polyclinic in Philadelphia.

After a period of private practice, he entered the military service in the Army Medical Corps in 1917. He was assigned to duty with the 82nd Division, initially with the 325th and subsequently with the 328th Division, first as a battalion surgeon and then as regimental surgeon. Another illustrious member of the 328th was Sgt. Alvin York.

After the war, Doctor Goldstein returned to Fort Smith, Arkansas, to become associated with the Cooper Clinic and to remain in medical practice in that community over the years. His life has been punctuated with innumerable episodes of service to his community, not only in the field of medicine but also in that of social service. He participated and has been the chairman for many years of the Sebastian County Department of Public Welfare. Because of his special knowledge of dermatology and syphilology, he contributed greatly as an advisor to the local health department in the management of venereal-disease problems at Camp Chaffee. He was instrumental in helping organize and was an active supporter of the Sebastian County Cancer Society. It was he, too, who guided the early work for the National Foundation for Infantile Paralysis. Dr. Goldstein also co-ordinated the work between hospitals,

nurses, and doctors of the Arkansas State Crippled Children's agency and the national, state, and county polio-foundation work. For many years, he has been chairman of the Child Welfare Committee of the American Legion. His life has been characterized by the giving of his services and his time to his fellowmen, and this service has been recognized in that he has received the Golden Deeds Award from the Exchange Club and special recognition from Fort Smith Rotary Club and the Sebastian County Medical Society.

This then is the manner of man who today makes it possible that we, as individuals, participate in the dedication of the Davis Woolf Goldstein Library and become cognizant also of the Davis Woolf Goldstein Research Fund which provides monies for the perpetuation of this library and for medical research. By the gift of the library, the legacies of the medical past, recorded in these books and collected by this man over a medical lifetime, have been given as an initial endowment for a nucleus of medical information.

The provision of ready access to this information has been assured by naming a great university as the repository for the collection. In this way, scholars may be assured that the doors to this knowledge are ever open. By providing not only the basic library and the furnishings of this room but, in addition, a monetary fund to provide certain means for the accession of new books, this colleague of ours has indeed provided for the future. Certainly, a man of vision! These gifts and their method of presentation once more at-

test to the delicacy and gentleness of his spirit and his profound humility and his unending kindness and generosity.

When participating at the dedication of the University of Tokyo's new medical library, Mr. Thomas Keys, Chief Librarian of the Mayo Clinic, said the knowledge stored up in a library is a treasure beyond price.⁴ But I would add that those men of vision who provide us with the libraries and the stimulus for advancement are also beyond price.

And so to you my friend, Davis Goldstein, on this day which I know means so much to you, and to your wife, Florence, who shares in your every joy and happiness, I offer to you two my sincerest thanks in your rendering this further service to your medical associates by giving these generous gifts which will contribute immeasurably to the service of mankind. As was said to the servant in biblical times, when he returned to his master with many times the blessings he had originally received, I say to you, Davis, on behalf of all of your friends gathered here, "well done, thou good and faithful servant."⁵

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5. The Holy Bible: Matthew 25:21.



The Flecked Retina Syndrome

A. E. Krill and B. A. Klien (950 E 59th St, Chicago) *Arch Ophthalmol* 74:496 (Oct) 1965

The flecked retina syndrome comprises a group of retinal diseases characterized by: (1) a posterior distribution of yellowish-white spots of various size and configuration, (2) a high incidence of macular disease, (3) normal peripheral visual fields, and (4) a characteristic retinal function pro-

file of electroretinogram, electro oculogram, and subjective dark adaptation. Twenty-eight patients were studied, and follow-up to date has indicated a stationary peripheral abnormality with a variable rate of progression of any macular disease present. The diseases included in this syndrome are thought to be of similar pathogenesis and probably reflect a disturbance at the level of the innermost layers of Bruch's membrane.

Olfactory Groove Meningioma: Herniation Following Spinal Anesthesia

John J. McCutchen, M.D.*

ABSTRACT

A death is reported following spinal anesthesia from tentorial and cerebellar herniation associated with a giant olfactory groove meningioma. Increased intracranial pressure requires an adequate systemic blood pressure to compensate for the increased cerebro-vascular resistance. A fall in systemic blood pressure in patients with increased intracranial pressure may decrease cerebral blood flow to the point of cerebral anoxia without compromising the blood flow to other organ systems. Lumbar puncture in itself may trigger herniation with cerebral death as the result.

Pre-anesthesia evaluation should include a complete history and neurological examination. Papilledema should be excluded in every patient, particularly those who may need a lumbar puncture.

INTRODUCTION

The first neurologic deficit attributed to spinal anesthesia was reported by König in 1906.¹ The list of complications has gradually expanded from individual case reports and from reviews of hospital spinal anesthesia experience.²⁻⁷

The ill effects of spinal anesthesia, during the period of anesthesia, usually occur in the first 15 to 20 minutes after the injection, according to Adriani.⁸ Vascular hypotension is perhaps the most frequent complication. Spinal anesthesia has been noted to result in coma which may persist after the anesthetic period.⁹ Hypotension is said to produce permanent vascular damage in 50 per cent of the elderly patients in which it occurs, significantly contributing to the mortality of spinal anesthesia.¹⁰

To prevent serious neural damage Michelsen emphasized, as early as 1932,¹¹ the importance of a good history and neurologic examination. He pointed out also the need for an occasional cerebro-spinal fluid (CSF) examination, before spinal anesthesia is given. Hammes¹² cautioned that preexisting organic neurological disorders were aggravated following spinal anesthesia. Fa-

talities are still reported with spinal anesthesia due to the lack of careful examination.¹³

Not all neurological complications are due to injection of agents into the sub-arachnoid space. The most frequent complication of spinal anesthesia, after the anesthetic period, is headache. This has been attributed to persistent leakage of CSF through the meningeal defect produced by the lumbar puncture needle and it is generally related to the needle size.^{14,15} Cranial nerve paresis has been seen with simple lumbar puncture.¹⁶ Spinal cord tumors have been known to produce acute symptoms following interference with CSF dynamics.^{3-6,17} Vandam and Dripps⁶ reported a case of spinal cord tumor to illustrate this point, pointing out the delay in diagnosis of the tumor following the onset of symptoms, which was due to the physician's pre-occupation with "post-spinal residual" as the etiology of the neurologic deficit.

Green⁷ cautioned against the use of spinal anesthesia in patients with increased intracranial pressure. The problem of herniation as a possible complication of spinal anesthesia has been alluded to.³

The following case from the City of Memphis Hospitals is presented as the first reported instance of death from spinal anesthesia due to herniation of the brain from a benign tumor, the tumor being undiagnosed until post-mortem examination.

CASE REPORT

This 70-year-old Negro male patient first complained of brief attacks of dizziness and "wave-like visions" before his eyes 9 years prior to admission to the hospital. During subsequent visits to the Medical Outpatient Clinic he complained to his physician of dizziness, a bad taste in his mouth and loss of appetite. He was not seen for a number of months, then was examined in the Emergency Department suffering from bilateral injuries to his legs after having been struck by an automobile. The only injuries sustained were to his legs and after X-rays of the lower legs revealed no fractures he was sent home. Two days after the accident he came to the Fracture Clinic, and

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his left leg was described as being cold and swollen. Both knees were markedly tender and swollen. X-rays revealed fracture dislocations of both knees, and the patient was admitted to the Orthopedic Service.

The admission history is limited to a brief description of the recent injury and the following statements: "Patient denies major medical and surgical illness in past. Denies drug allergies". The brief physical examination noted the pulse as 94 and the blood pressure as 180/80. There was no mention of the pupils, ocular fundi or a neurological examination.

Admission laboratory data revealed an hematocrit of 36%, a WBC of 8850 with 63% band forms and a urinalysis in which 30-60 WBC's per high power field were seen.

The patient was received on the ward at 11:30 A.M. and surgical consultation was obtained. The general surgical staff decided on popliteal artery exploration and the patient was taken to the operating room at 3:00 P.M. after being given 75 mg. of meperidine. The anesthesia record noted the blood pressure as 150/90, pulse 120 and respiration as Cheyne-Stokes before anesthesia was administered. Tetracaine 13 mg., 10% Dextrose in water 1.2 cc and epinephrine 1:1000 0.2 cc was given for spinal anesthesia and a level at T-8 was obtained. Thirty minutes after spinal anesthesia was administered the blood pressure fell to 70/40 and 2 units of whole blood were administered. The blood pressure rose to 120/70 one and one-fourth hours after the initiation of anesthesia. The record of anesthesia noted the administration of 2:1 meperidine and levallorphan 2 hours after the spinal. The popliteal artery was not deemed repairable and an above-the-knee amputation was elected by the surgeon. Shortly before the flaps of the amputation were to be closed the surgeon noted the blood from the stump was dark and attempts were made to improve the oxygenization. Attempts at intubation were unsuccessful and four minutes later, three and one-half hours after the initiation of spinal anesthesia, the patient's heart stopped. Open-chest cardiac massage was performed without success.

At autopsy, a 4.5 cm. roughly spherical olfactory groove meningioma was found (Fig. 1). A prominent left cerebellar tonsillar hernia and a necrotic, markedly atrophic right tonsil were present. There was almost total destruction of the olfac-

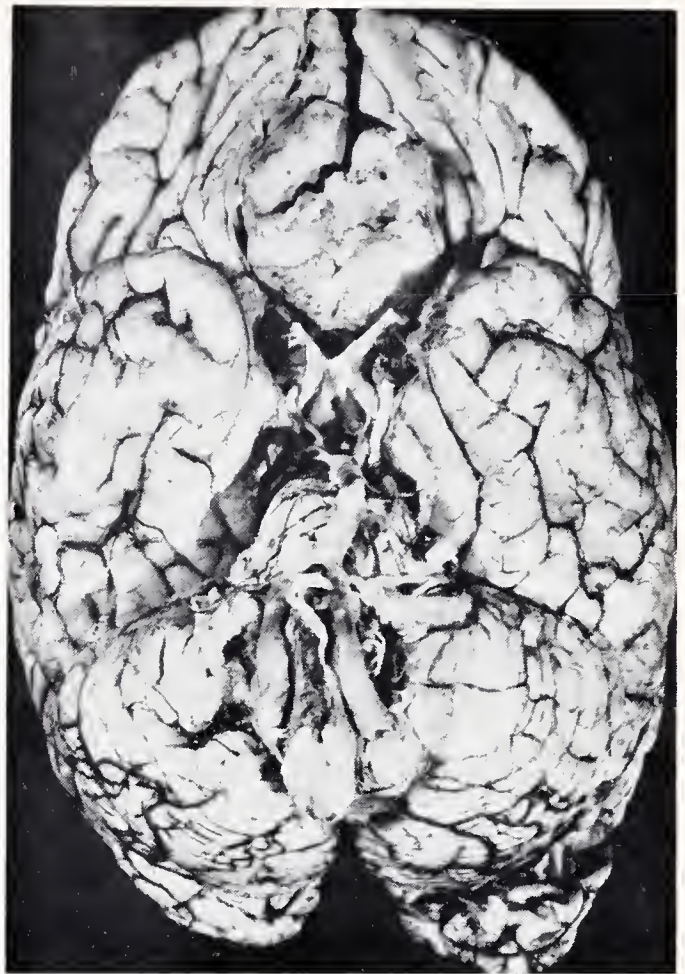


Figure 1

Basilar view of the brain showing giant olfactory groove meningioma *in situ*.

tory tracts by the meningioma. Microscopic examination revealed encephalomalacia of the atrophic right cerebellar tonsil, consistent with infarction of a chronically herniated tonsil.

DISCUSSION

Lumbar puncture has been accused of responsibility for herniation of the brain in some patients.^{18,19} Not all patients with supratentorial or infratentorial tumors and increased intracranial pressure react to lumbar puncture by herniation.^{20,21} One of the difficulties in evaluating the literature on patients with brain tumors and increased intracranial pressure, who undergo lumbar puncture, is the delay in herniation for as long as 24 hours which occurs in some patients. Another factor of course is the operative intervention of the surgeon in those patients who show signs of worsening or who are sent to surgery as soon as a definitive diagnosis of brain tumor is made.

Finney and Walker²² implicated transtentorial herniation as the immediate cause of death in

many brain tumors. Despite clinical differences of opinion as regards the safety or hazards of lumbar puncture in patients with intracranial mass lesions, some patients stop breathing permanently within minutes after a lumbar puncture and at post-mortem are found to have recent significant degrees of herniation of nervous tissue. It would seem that the only issue is the ability of the clinician to predict accurately in which case herniation would occur from lumbar puncture, since it is clear that lumbar puncture is not a benign procedure in all patients with increased intracranial pressure.

The effects of increased intracranial pressure are related in general to the mean arterial blood pressure, the CSF pressure and the axial relationships of the intracranial structures.

Cushing²³ observed in 1901 the tendency of the blood pressure to remain at a level above that of the pressure exerted upon the brain by the CSF. The periods of cerebral convolutional anemia seen by Cushing when the blood pressure fell below the CSF pressure were postulated to stimulate a pressor response by the medulla. A year later, in 1902, Cushing²⁴ saw venous stasis as the first reaction to rising intracranial pressure and questioned the effects of venous stasis as a possible etiology of vagal bradycardia. Cushing also noted the blood pressure response from medullary stimulation by intracranial pressure would reach two to three times normal levels. Medullary anemia per se was shown by Rodbard and Saiki²⁵ to play no part in the blood pressure response.

Tsubura²⁶ found the respiratory center to be the most sensitive of the medullary centers, noting that pressure on the medulla resulted first in an increase in the depth and rate of respiration, followed by retardation of respiration or apnea as pressure increased. These phenomena were ascribed to the effects of anemia and the accumulation of waste products from stagnation of blood.

CSF pressures in excess of 450 mm. of water exceed the blood pressure compensation and cerebral blood flow begins to fall as the pressure increases, collapsing capillary walls.²⁷ Ultimately cerebral hypoxia is produced, as the compensating mechanisms of increased arterio-venous differences, more efficient metabolism and elevated arterial blood pressure are exceeded. A transient drop in the systemic blood pressure may increase cerebral hypoxia, with consequent respiratory

paralysis, followed ultimately by circulatory arrest.

Heiskanen²⁸ studied comatose patients with severely increased intracranial pressure. Serial angiography demonstrated slowing or arrest of the cerebral circulation. Electroencephalograms recorded in some patients on artificial respiration administered because of lack of spontaneous respiratory activity showed no electrical activity of the brain even though the cardiovascular system continued to function. He observed that respiratory arrest in patients with increased intracranial pressure may signify "cerebral death".

Thompson and Malina²⁹ stressed the importance of "axial distortion" when intracranial mass lesions are present. The medulla and cervical cord are relatively fixed in position and the brain stem is buckled as the lesion expands, interfering with the transmission of impulses from more rostral centers, and stretching and tearing the basilar arterial branches. Hess³¹ emphasized the hypothalamic location of the primary nuclei of the respiratory and cardiac control centers as well as the centers concerned with sleep and the degree of consciousness. He, therefore, related the alterations in pulse, respiratory rate and consciousness to tentorial herniation.

Analysis of the clinical records of this case indicate a disturbance in the patient's respiration and state of consciousness prior to spinal anesthesia. The phenomenon of decompensation of a brain tumor is known to occur spontaneously as well as following trivial trauma, drug administration, lumbar puncture and air contrast studies. The pre-operative administration of meperidine may have initiated the series of events which culminated in the patient's death.

Leakage of spinal fluid through the meningeal defect from the administration of spinal anesthesia, and the transient fall in blood pressure during the operation probably contributed to further decompensation. Cerebral death with medullary failure would result in anoxia and subsequent cardiac arrest.

The post-mortem findings support the hypothesis of a state of chronically increased intracranial pressure rather than tonsillar herniation as an incidental agonal event.

An adequate history and physical examination provide the basic knowledge for further patient management. When increased intracranial pres-

sure is known or suspected from this knowledge, the anesthesiologist can then avoid cerebral depressant drugs and choose an appropriate anesthetic technique.

SUMMARY

1. A death is reported following spinal anesthesia from tentorial and cerebellar herniation associated with a giant olfactory groove meningioma.

2. Cerebral blood flow is dependent on an adequate systemic blood pressure. The increased cerebral vascular resistance produced by increased intracranial pressure requires a compensatory rise in the systemic blood pressure to maintain cerebral blood flow. A fall in systemic blood pressure in patients with increased intracranial pressure may decrease cerebral blood flow to the point of cerebral anoxia without compromising the blood flow to other organ systems.

3. Emphasis is made of the importance of a complete history and physical examination before anesthesia, in order to detect occult neurological disease. Papilledema should be excluded in every patient undergoing spinal anesthesia.

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DISACCHARIDE INTOLERANCE

Samuel W. Boellner, M.D.

Introduction

Disaccharide intolerance was first reported by Durand in 1958.¹ The syndrome consists of gastrointestinal signs and symptoms due to the inadequate digestion of one or more of the disaccharides—lactose, sucrose, isomaltose, and maltose. Before these disaccharides are absorbed and utilized, they must be hydrolyzed to monosaccharides by disaccharidase enzymes which are located and function in the epithelial cells of the intestine.² Intolerance may result from a congenital or acquired deficiency in one or more of the enzymes (primary intolerance) or from conditions which alter either anatomically or functionally the intestinal epithelial cells (secondary intolerance).^{3,4} Disaccharide intolerance is probably relatively common, and more cases are being reported as physicians become aware of the syndrome and diagnostic efforts are increased. Because there is a treatment for this severe and potentially fatal disorder, early diagnosis is important.

The congenital disaccharidase deficiency has been described in 61 patients. This is manifested by either severe diarrhea or vomiting, resulting in malnutrition, dehydration, and occasionally death. Symptoms usually appear in infancy shortly after the intolerated disaccharide is introduced in the diet and persist as long as the diet contains the disaccharide. The congenital disorder is regarded as hereditary because several siblings in the same family are frequently affected. An acquired form of enzyme deficiency with onset occurring later in life has been reported rarely.³ Secondary intolerance has been reported in association with enteritis,⁴⁻⁷ celiac disease,^{3,8-12} cystic fibrosis,^{3,11,13} and following gastrectomy and gastrojejunostomy.^{14,15}

These case reports of primary and secondary intolerance have stimulated further investigation into the physiology of carbohydrate hydrolysis and absorption. Consequently, advancements have been made in these areas in the past few years. The present paper will review some basic principles of carbohydrate metabolism and outline the manifestations and diagnosis of disac-

charide intolerance.

Carbohydrate Metabolism

Dietary Carbohydrates: The average American diet consists of approximately 50% carbohydrate; in an adult this represents a daily intake of 250-600 gms. At 4 cal/gm. this carbohydrate intake furnishes us 1000-2400 calories per day.

TABLE 1

TYPES OF CARBOHYDRATES

Polysaccharides:

starch	dextrin
glycogen	inulin
gum	

Disaccharides:

maltose	lactose
isomaltose	trehalose
sucrose	

Monosaccharides:

A. Pentoses (5-carbon sugars)

ribose	xylose
arabinose	

B. Hexoses (6-carbon sugars)

fructose	glucose (dextrose)
galactose	mannose

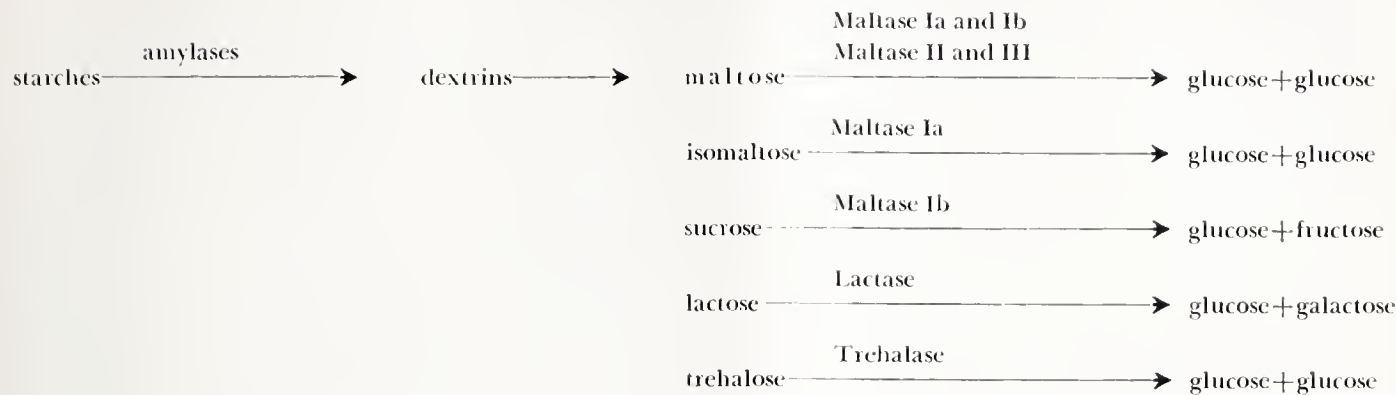
A classification of carbohydrates is shown in Table 1. To a great extent the carbohydrates in our diet are complex substances, predominantly polysaccharides and disaccharides which must be hydrolyzed to monosaccharides in the intestine before they can be utilized in the body.

Carbohydrate Digestion: The various pathways of carbohydrate digestion are shown in Table 2. The major dietary polysaccharide is plant starch. This is acted upon by amylase to form about 87% maltose and 13% glucose.¹⁶ Amylase also breaks down animal glycogen. About 50% of amylase activity comes from salivary secretion and the remainder from pancreatic and intestinal secretions.

The disaccharides are hydrolyzed to monosaccharides by specific disaccharidases.¹⁷ In the case of maltose, hydrolysis to glucose is accomplished by four disaccharidases—maltase Ia, Ib, II, and III. In addition, maltase Ia (isomaltase) hydrolyzes isomaltose to glucose, and maltase Ib (inver-

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TABLE 2
CARBOHYDRATE DIGESTION



tase) hydrolyzes sucrose to glucose and fructose. Lactase (beta-galactosidase) is specific for lactose and hydrolyzes this disaccharide to glucose and galactose. Trehalose is a disaccharide found in mushrooms and requires the intestinal enzyme, trehalase, for its hydrolysis.

Site and Mechanism of Carbohydrate Absorption: Monosaccharide absorption probably occurs predominantly in the upper and mid-portion of the small intestine¹⁸ and is greatest in the distal one-third of the intestinal villus.¹⁹ An active transport mechanism is involved, but a "carrier" has not been identified.^{2,16} Contrary to what was once thought, phosphorylation of monosaccharides is probably not an essential prerequisite for transport.² Since competitive inhibition occurs between all sugars which are actively transported, a single transport system may be involved.²⁰

Disaccharide absorption occurs primarily in the upper portion of the small intestine,²¹ the site which contains the highest concentration of the disaccharidase enzymes.^{2,22} Until recently it was believed that the disaccharidase enzymes were secreted as part of the "succus entericus" into the lumen of the small intestine. In 1957, Borgstrom and his associates²³ analyzed the disaccharidase activity of small intestinal contents and found very little enzyme activity. They suggested that the disaccharidase enzymes were localized and functioned within the epithelial cells. Several studies by Miller and Crane have subsequently confirmed this hypothesis.²⁴⁻²⁶

The epithelial cell of the intestine is the principal site of disaccharide hydrolysis. Little hydrolysis of disaccharides occurs after absorption¹¹ in spite of the presence of disaccharidase activity in many organs;²⁷ 85 to 95% of intravenously administered disaccharide is excreted intact in the

urine within 24 hours.^{28,29} Normally, less than 0.1% of ingested disaccharide is absorbed unhydrolyzed into the blood, and the concentration in the urine is less than 100 mg%.^{3,28,30,31} Larger quantities of intact disaccharide may be absorbed and excreted in the urine in patients with disaccharide intolerance.¹¹

Influence of Age on Lactose Metabolism: Lactose metabolism is impaired during the first few days of life in otherwise normal premature and term infants. Increments in blood glucose values after oral administration of lactose are decreased when compared to older premature infants. Increments are less following oral administration of lactose than after glucose or equimolar glucose-galactose. Administration of lactase enzyme before oral loading with lactose results in significantly greater increments in blood glucose values.³³ Lactose concentration in the urine is higher during the first week of life than during succeeding weeks.^{32,33} These findings suggest that during the first few days of life there is impairment in hydrolysis of lactose, and that this may be the result of either an insufficiency of intestinal lactase or an anatomical or functional alteration in the intestinal epithelial cells at birth.

Impairment of lactose metabolism assumes particular importance in early infancy since this is the only carbohydrate present in any quantity in breast milk as well as in nearly all commercial milks. Lactose contributes about 40% of ingested calories. In premature infants who usually have blood glucose levels the first weeks of life between 30 and 50 mg%^{34,35} and frequently develop symptomatic hypoglycemia, the incorporation of monosaccharides (glucose) in early feeding regimens should provide carbohydrate which is more available for absorption and utilization.

If an absolute insufficiency of intestinal lactase is responsible for this impairment in lactose metabolism, then the maturation of this enzyme system in humans differs from that in rats,^{36,37} rabbits,³⁷ and piglets.³⁸ In these animals lactase activity is maximum at birth. Unfortunately, there are not sufficient assays of intestinal lactase, nor of any disaccharidase enzymes, to evaluate the degree of activity present at birth in the human neonate. Man is the only mammal studied, however, who does not have a decrease in lactase activity after weaning.^{3,39}

Substrate induction may in part explain changes in lactase activity which may occur after birth. A diet rich in sucrose has been shown to increase invertase activity in the intestine of rats⁴⁰ and lactase activity has been shown to be substrate-induced in micro-organisms.⁴¹⁻⁴³ If this applies to the human neonate, a diet rich in lactose may in part be responsible for stimulating an increase in lactase activity and improvement in lactose tolerance during the first week of life. Currently available data, however, permit no conclusion as to whether or not substrate induction of lactase activity occurs in humans.^{2,3} Studies in rats^{36,37} and rabbits³⁷ suggest that substrate induction of lactase activity does not occur in these animals.

Primary Disaccharide Intolerance

Etiology: Primary disaccharide intolerance is produced by a deficiency of one or more disaccharidase enzymes. The enzyme deficiencies have been confirmed by intestinal enzyme assays in patients with lactose,^{44,45} sucrose,^{46,48} and isomaltose⁴⁶⁻⁴⁸ intolerance. The enzyme deficiency is most often regarded as congenital since symptoms usually appear in infancy; however, acquired forms of the syndrome have been described rarely in which the onset of symptoms occurred later in life.^{3,49,50} The congenital disorder is regarded as hereditary since more than half of the reported cases have other siblings in the family affected.

TABLE 3
TYPES OF CONGENITAL DISACCHARIDE
INTOLERANCE

Intolerated Disaccharide	Major Food Source	Number of Reported Cases	Most Frequently Associated Intolerance
Sucrose	Cane Sugar	33	Isomaltose
Maltose	Cane Sugar Plant Starch	1	Sucrose & Isomaltose
Lactose	Milk	27	Sucrose
Total		61	

Types of Intolerance: The congenital disaccharide intolerances which have been reported in the literature are summarized in Table No. 3. Sucrose intolerance was first reported in 1960 by Weijers.⁵¹ Of the 33 cases which have now been described, 18 have had an associated intolerance to isomaltose.^{48,51-65} In 14 others, intolerance to isomaltose was either not investigated or inconclusive,⁶⁶⁻⁷³ and in only one patient has a specific intolerance to sucrose alone been demonstrated.⁷⁴ Intolerance to isomaltose alone has not been reported. Although invertase and isomaltase are responsible for about 50% and 25% respectively of maltose hydrolysis,¹⁷ apparently no clinical symptoms of maltose intolerance occur unless all 4 maltose splitting enzymes are deficient.

There has been one case of maltose intolerance reported where there was a deficiency of all 4 enzymes shown to split maltose.⁵² As expected, this patient also had associated isomaltose and sucrose intolerance. That certain of the hereditary disaccharide intolerances may be caused by multiple enzyme defects is most unusual since most human genetic disorders have involved a deficiency or absence of only one enzyme.

Next to sucrose, the most frequently described disaccharide intolerance has been that of lactose; 27 cases have been reported.^{1,7,45,52,75-87} An associated intolerance to sucrose has been described in three of these patients.^{82,86} Intolerance to trehalose has not been reported.

Clinical Manifestations: The majority of cases of disaccharide intolerance have been described in the pediatric literature and have had the onset of symptoms in infancy. Whether symptoms begin at birth or later in infancy is determined by the sugar to which the patient is intolerant. In the case of lactose intolerance, symptoms appear during the first days or weeks of life since infants are exposed to high concentrations of lactose in breast milk as well as in most commercial milk preparations. Milk is the only food which contains lactose.⁸⁸ Many patients with so-called "milk-allergy" have lactose intolerance.³ Intolerance to sucrose, isomaltose, and maltose first produces symptoms when the patient gets a mixed diet at about 2 or 3 months of age. The major source of sucrose is cane sugar, while that of isomaltose is plant starch.³ Many milk preparations also contain sucrose and maltose.

In sucrose, isomaltose, and maltose intolerance,

feedings are poorly tolerated; persistent, severe diarrhea and occasionally vomiting may result in malnutrition and dehydration. Diarrhea, flatulence, and colic occur when the diet contains the intolerated disaccharide. These gastrointestinal disturbances are due to increased fermentative breakdown of the non-absorbed disaccharide by intestinal bacteria. An osmotic effect is exerted in the colon by the unhydrolyzed disaccharide as well as by some products of bacterial degradation. Some of these products may also have a direct irritating effect on the colon, thus stimulating intestinal motility.⁵² Steatorrhea may occur occasionally.^{64, 65, 77}

Two types of lactose intolerance, which differ

TABLE 4
SUMMARY OF THE CLINICAL AND
LABORATORY FINDINGS IN THE
TWO TYPES OF LACTOSE INTOLERANCE

	Non-Absorptive	Absorptive
Number of cases reported	11	16
Positive family history	Frequent	Frequent
Onset of symptoms	First weeks of life	First weeks of life
Vomiting	Absent or moderate	Severe
Diarrhea	Severe	Absent or moderate
Malnutrition	Severe	Severe
Response to therapy	Good	Fair
Number of deaths	0	11
Blood glucose curve after lactose loading	Flat	Probably flat
Lactosuria (greater than 500 mg%)	Rare	Present
Sucrosuria and/or Aminoaciduria	Absent	Occasionally present

clinically as well as biochemically, have been described.⁸⁶ In Table No. 4 are shown the distinguishing clinical and laboratory findings in these two types—non-absorptive^{7, 45, 52, 75-79} in which lactose is not absorbed but excreted in the feces, and absorptive^{1, 79-87} in which lactose is absorbed unhydrolyzed into the blood and excreted intact in the urine. A deficiency of lactase is the cause of the non-absorptive type^{44, 45} and may be the cause of the absorptive type, although no intestinal enzyme studies have been carried out in patients with the absorptive type of intolerance.³ There is no significant increase in complicated pregnancies, premature births, or predominance of one sex in either type. Symptoms usually appear in the first days or weeks of life in both types. Poorly tolerated feedings, malnutrition, and dehydration are characteristic of both.

In the non-absorptive type, vomiting is rarely seen; however, the disaccharide is excreted via the feces, and fermentation of unabsorbed lactose causes marked diarrhea. There is usually little or

no absorption of unhydrolyzed lactose; consequently, lactosuria is not seen in these patients. The oral lactose tolerance test produces a flat blood glucose curve.

In the absorptive type, unhydrolyzed lactose is largely absorbed into the blood and excreted in the urine. Associated sucrosuria^{82, 86} as well as generalized aminoaciduria^{81, 86} have occasionally been reported. In these patients intractable vomiting is a prominent feature of the disease and has been postulated to be due to a "toxic" action of circulating unhydrolyzed lactose.⁸⁶ Severe diarrhea is rarely seen in this type. Oral lactose loading tests have been performed in only five of these patients,^{1, 79, 81, 84, 86} and these have revealed a normal elevation in total blood reducing substances. This increase is probably primarily due to increased absorption of intact lactose rather than glucose. Unfortunately, the blood glucose curve was not investigated.

Two intestinal lactases have been identified and may have different locations within the epithelial cells.⁸⁹ It may be, therefore, that the two types of lactose intolerance represent deficiency of different enzymes. Another explanation is that the absorptive type merely represents the severe cases where the intestinal mucosa is so badly damaged that it is more permeable, thus permitting unhydrolyzed lactose to be absorbed into the blood. At present, however, it appears best to separate the two types rather than regarding them as variations in severity of the same entity.^{3, 86}

Diagnosis: The most direct approach to the diagnosis of disaccharide intolerance is to biopsy the duodenal mucosa and quantitatively assay disaccharidase activity. The diagnosis can also be established by doing oral carbohydrate tolerance and urinary disaccharide excretion studies, both of which correlate well with enzyme assays.³ In sucrose, isomaltose, and maltose intolerance, oral loading with the intolerated disaccharide produces a flat blood glucose curve, but the administration of the corresponding monosaccharides or other well-tolerated disaccharides is followed by a normal blood glucose response (Figure 1). In these types of intolerance abnormally large quantities of the intolerated disaccharide may also be excreted in the urine.

It is important to remember that the non-absorptive type of lactose intolerance is diagnosed by carbohydrate absorption studies, and the ab-

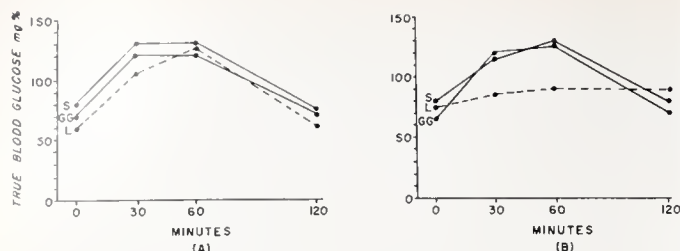


FIGURE 1

Results of oral carbohydrate tolerance tests in normal subject (A), and in patient with lactose intolerance (B). L=lactose tolerance test (1.75 gm/kg); GG=equimolar glucose-galactose tolerance test (0.87 gm of each/kg); S=sucrose tolerance test (1.75 gm/kg).

sorptive type by measuring the concentration of lactose in the blood or urine following loading with lactose. An awareness of the clinical manifestations will usually enable the physician to know which type to suspect.

To test for carbohydrate absorption, true blood glucose (e.g. glucose-oxidase method⁹⁰) is measured before, and at 30, 60, and 180 minutes after the oral administration of a specific carbohydrate (1.75 gms/kg dissolved in water to make a 12.5% solution—about 50 gms per 100 ml water). For example, in the case of suspected lactose intolerance, this disaccharide is administered orally in the above amount and concentration following a fast of at least 4 or 5 hours. The next day both constituent monosaccharides of lactose (equimolar glucose-galactose; 0.87 gm of each/kg) are administered orally, and blood glucose measured as before. The typical responses to carbohydrate loading for a normal infant and an infant with lactose intolerance as shown in Figure 1. Normally, increments* in blood glucose values should be about the same following disaccharide and monosaccharide loading. There is usually at least a 40 mg% increment in blood glucose at 30 minutes and 60 mg% increment at 60 minutes.³ With a disaccharide intolerance, increments 30 and 60 minutes after oral loading with the disaccharide are less than 15 mg% and 20 mg% respectively.³ Also, the test usually results in severe diarrhea, weight loss, and a decrease in fecal pH, often to as low as 4.5.^{3, 62} This clinical response to the administered disaccharide is equally as important as the blood glucose response, particularly since carbohydrate tolerance tests may at times be misleading. Flat curves (defined as a rise in blood glucose less than 25 mg%) following

*Increment=change in blood glucose values as shown by 30 or 60 minute level minus fasting value.

oral administration of lactose⁹¹ as well as glucose^{92, 93} have been reported to occur in about 20% of normal young adults without milk intolerance. Care should be taken to perform these tests during a diarrhea-free period and after a stabilized diet.⁷ Also, secondary causes of malabsorption and intolerance should be excluded.

To test for disacchariduria, an approximate 8 hour urine specimen should be collected following oral loading with the disaccharide (1.75 gm/kg). Disacchariduria is often detected by chromatographic methods only, but when large amounts of disaccharide are present in the urine a test for total reducing substances (Clinitest) will be positive. A negative Clinistix will exclude the presence of glucose. Paper chromatography⁹⁴ will identify the disaccharides by separating them into characteristic spots. Their concentrations can be determined by analyzing each spot for total reducing substance by the method of Benedict.⁹⁵ Following oral loading in normal patients, disaccharides may be excreted in the urine, but the concentration of each disaccharide in the urine is usually less than 100 mg%.^{3, 28, 30, 31} For this reason the mere finding of traces of a disaccharide in the urine is not sufficient evidence for the diagnosis of this syndrome. With intolerance the concentration is usually greater than 500 mg%.¹¹

Treatment: Therapy consists of excluding the offending disaccharide from the diet. The reported cases of sucrose, isomaltose, maltose and the non-absorptive type of lactose intolerance have responded dramatically within days after exclusion of the offending disaccharide. In regard to patients with the severe type of lactose intolerance (absorptive type), 5 were not placed on a lactose-free diet and all died.^{81, 83, 85, 86} Of the 11 patients treated, 2 showed no clinical improvement and subsequently died.⁸¹ Nine showed considerable clinical improvement; of these 5 survived^{79, 82, 84, 86} and 4 died.^{1, 81, 83, 86} Death in these 4 treated cases was due to respiratory infection in two,^{81, 86} subdural hematoma in one,⁸³ and unknown cause in one.¹

In Table No. 5 is shown the carbohydrate composition of many prepared milk formulas and milk modifiers. An appropriate formula can usually be selected which does not contain an intolerated disaccharide. From the limited data available it would appear wise to eliminate the offending disaccharide from the diet for a

TABLE 5
CARBOHYDRATE COMPOSITION OF MILKS
AND MILK MODIFIERS

Type of Milk	Carbohydrate	Per cent of Carbohydrate After Normal Dilution
Human	lactose	6.8
Cow's whole	lactose	4.5
Evaporated milk	lactose	9.5*
Dale goat's milk	lactose	4.9
Meyenberg goat's milk	lactose	4.5
Alacta	lactose	5.8
Baker's Modified	lactose, dextrins, maltose, dextrose	7.0
Bremil	lactose	7.0
Carnalac	lactose	8.2
Dalactum	lactose, dextrins, maltose	11.1
Enfamil	lactose	7.0
Formel	lactose	7.0
Gerber's MBF	sucrose, dextrins, maltose	9.9
Lactum	lactose, dextrins, maltose	7.8
Lambase	maltose, dextrins, dextrose	7.9
Lonalac	lactose	4.8
Modilac	lactose, dextrins, maltose, dextrose	7.6
Mull-Soy	sucrose, dextrins, maltose, dextrose	5.2
Nutramigen	sucrose, lactose (only 0.1%)	8.5
Olac (liquid)	lactose, dextrins, maltose	7.5
Probana	dextrose, lactose	7.3
Similac (liquid)	lactose	6.6
Similac PM 60/40	lactose	7.2
SMA S-26	lactose	7.2
Sobee	dextrins, maltose, sucrose	7.7
Soyalac	sucrose, dextrose, maltose, dextrins	6.0
Varamel	lactose	8.3

*Undiluted

Type of Milk Modifier	Carbohydrate Content (not reconstituted)			
Borcherdt Malt Sout Extract	maltose	58%		
	dextrins	11%		
Cartose	dextrose	17%		
	maltose	16%		
Dexin	dextrins	41%		
	dextrins	75%		
Dextri-Maltose No. 1, No. 2, and No. 3	maltose	24%		
	maltose	55%		
Gerber's Milk Modifier	dextrins	42%		
	dextrins	80%		
	maltose	8%		
Honey, strained (liquid)	dextrose	8%		
	fructose	41%		
	dextrose	34%		
	sucrose	2%		
Karo Syrup (liquid)	dextrins	2%		
	dextrins	36%	Red Label	Blue Label
	maltose	18%		
	maltose	18%		
Red label—light	dextrose	12%		
	dextrose	12%		
Blue label—dark	sucrose	9%		
	sucrose	4%		

minimum of one year, then retest the patient to determine if the intolerance persists. If tolerance has improved, the disaccharide may be slowly introduced into the diet.

Prognosis: The only reported deaths have occurred in patients with the absorptive type of lactose

intolerance. Eleven of the 16 reported cases have died. One patient died at 3 days of age,⁸⁶ six between 4 and 8 weeks,^{81, 83} three between 3 and 5 months,^{83, 85, 86} and one at 15 months of age.¹ The other types of disaccharide intolerance have a more benign course and respond readily to therapy.

Several follow-ups on patients with sucrose and both types of lactose intolerance have shown the patient to have normal carbohydrate absorption studies as well as normal urinary excretion studies by 2 years of age.^{75, 79, 86} Only rarely have older children and adults been shown to suffer from congenital disaccharide intolerance;^{3, 44, 45, 72, 84} therefore, it appears that the disorder is usually self-limiting. The adaptive mechanism for recovery is as yet unknown.³ Recovery may be dependent on whether there is relative or absolute deficiency. With total absence of the enzyme, recovery would not be expected; in the case of relative deficiency, recovery may be possible.

Secondary Disaccharide Intolerance

Besides primary intolerance to disaccharides, several diseases have been associated with various degrees of carbohydrate intolerance. These have been labelled as secondary intolerances. Since the disaccharidase enzymes are located and function in the brush border and epithelial cells of the intestinal wall, secondary deficiencies may result from any process which damages these cells either anatomically or functionally.⁴ The secondary intolerances are of equal practical importance as the congenital intolerances. The importance of recognizing the condition and removing the offending sugar from the diet is obvious, because in addition to producing diarrhea, hypoglycemia may be a serious complication due to inability to metabolize the available carbohydrate. Our knowledge concerning the etiology of these secondary types of intolerance is at present quite limited; however, the clinical manifestations, diagnosis, and therapy are similar to those of primary disaccharide intolerance.

A transient disaccharide malabsorption, as evidenced by disacchariduria (particularly lactosuria) and flat disaccharide tolerance curves, has been shown to occur in children during bacterial and nonspecific diarrheal diseases⁴⁻⁷ as well as during massive *Giardia lamblia* infestation.⁷ No enzyme assays have been performed in these children.³ The disaccharide malabsorption may be secondary to rapid intestinal transit, damaged

intestinal mucosa, or to a thick layer of mucus inhibiting diffusion of the sugar into the intestinal wall. This transient disaccharide intolerance may explain the clinical impression that children during diarrheal diseases, and for several days or weeks thereafter, often tolerate prepared formulas with low concentration of lactose better than whole milk or prepared milk formulas which contain about 5-7% lactose.

Disaccharide intolerance occurs frequently in patients with celiac disease.^{3,8-12} Probably most patients with celiac disease have disacchariduria which appears to be directly related to the severity of the disease.¹¹ Flat blood glucose curves are observed following oral administration of the intolerated disaccharide. Intestinal biopsies from patients with celiac disease show decreased disaccharidase activity.¹² Lactase is usually the most deficient enzyme and maltase the least deficient. Only the deficiency in lactase has been shown to produce clinical symptoms in these patients. When disaccharide intolerance occurs with celiac disease, the clinical response to treatment is much faster if milk and milk products as well as gluteins are removed from the diet. Results of serial biopsies also suggest that removal of disaccharides, particularly lactose, from the diet hastens histologic and enzymatic recovery.¹²

Lactosuria and sucrosuria have been shown to occur in most patients with cystic fibrosis,¹¹ and a selective lactase deficiency has been confirmed by enzyme assay in one patient with this disease.¹³ It is of interest that in 1950 an enzyme defect of the small intestine was postulated in cystic fibrosis to explain the poor correlation between the clinical severity of the disease and pancreatic involvement observed at autopsy.⁹⁶

Lactosuria and sucrosuria have been described in patients after gastrectomy and gastrojejunostomy.^{14,15} Impairment of disaccharide metabolism in these patients may explain the postgastrectomy symptoms of dumping, diarrhea, and milk intolerance.

In evaluating the possible etiology of impairment in disaccharide metabolism, attempts should be made to exclude this secondary type as opposed to the congenital or acquired types of primary disaccharide intolerance.

Conclusion

Patients with disaccharide intolerance offer a new challenge for the physician. The probable

frequent occurrence of this syndrome, the severity of the clinical manifestations, and the possibility of treating these patients successfully make knowledge of the disorder important. If unrecognized, the course may be progressively downhill, possibly terminating in death of the infant. However, if the intolerated disaccharide is eliminated from the diet, the course of the disorder may be completely reversed.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF

OBSTETRICS AND GYNECOLOGY

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LEUKOPLAKIA OF THE VULVA

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Much has been said and written of leukoplakia of the vulva, and yet, very little is known about the disease. The confusion that has existed about this disease entity has been perpetuated for years by misstatements and misuse of terms. Mainly, this has evolved because of the labeling of all white lesions of the vulva as leukoplakia. To avoid confusion the specific diagnosis of a white lesion of the vulva should be decided upon only after thorough clinical and histologic examination.

This is a review of leukoplakia of the vulva in addition to a study of all cases of leukoplakia that have undergone vulvectomy at the University of Arkansas Medical Center during the years 1950 through 1965.

HISTORICAL BACKGROUND

In 1885 Breisky originally described an atrophic vulvar degeneration which he called kraurosis vulvae. He described changes in the vulva that resulted in vestibular stenosis causing interference with coitus and childbirth. In some areas where retraction was the most pronounced, white, dry patches with a thick roughened epidermis were noted. Later writers concluded that these thick, white patches in Breisky's description were leukoplakia.

Jayle in 1906 stated that he agreed with this concept, especially because of the relative frequency of cancer in these patches. However, Jayle felt that the atrophy could occur without leukoplakia, and that it was a frequent complication of such a process. It is this concept of Jayle's

which most people accept today. He also stated that it is certain that leukoplakia and kraurosis vulvae can co-exist, and that he has observed cases of kraurosis for years that did not develop leukoplakia. Later on Jayle looked upon kraurosis as the end stage of ordinary vulvar sclerosis.

In 1909 Berkeley and Bonney published an article describing leukoplakic vulvitis and the relationship to kraurosis vulvae and carcinoma vulvae. They felt that leukoplakic vulvitis and kraurosis vulvae were two different diseases. They excluded from the category of kraurosis all cases that exhibited leukoplakic tendencies by assuming the so-called white kraurosis was simply a misnomer for leukoplakic vulvitis, a lesion which they state is clinically and histologically entirely distinct from kraurosis. The inference was that Breisky's disease was not really kraurosis because he described as an integral element of the disease changes that can be interpreted as nothing other than leukoplakia. Berkeley and Bonney's kraurosis is a rare condition of atrophy of the vulva that is all but symptomless, and *does not* lead to cancer. Its chief clinical significance is that it causes dyspareunia, due to stenosis of the vaginal orifice.

Graves and Smith, on the other hand, maintain that Berkeley and Bonney's leukoplakia corresponds to what clinicians generally call kraurosis, or to be more exact, kraurosis with leukoplakia. Graves and Smith also believe that leukoplakia and kraurosis are phases of the same pathological process. They recognize the inadequacy of the term kraurosis, since it characterizes

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only the atrophic stage of the process. In their histological study of eighteen cases which showed the conditions of kraurosis, they found that the squamous epithelium was thinner than normal, the papillae short and thin or completely flattened out. The corium was very dense, elastic tissue was entirely absent, glands and basic follicles sparse, and throughout there was a considerable degree of round cell infiltration. In all of Graves and Smith's specimens, areas were found which showed leukoplakia. They state that when leukoplakia is present, the corium is denser than normal, but less so than in kraurosis alone. The only essential difference between leukoplakia and kraurosis is the great activity in the former of the squamous epithelial layer.

Still another view is that of Veit, in which kraurosis is looked on as an end product of leukoplakia, the two being regarded as different stages of an identical process. By this view leukoplakia is not a special disease entirely, but is rather a type of cell change that epithelium may undergo in its reaction to certain irritants. This typical reaction is encountered in numerous mucous surfaces of the body, most commonly in the mouth, less frequently in the vulva.

Terran believes that there is an intimate relationship between leukoplakia and kraurosis, but they are not always associated. In the early stage of the disease, there is hyperplasia of the epidermis, and most important, disappearance of the pigment in the basal layer. This is accomplished by a marked edema in the cutis causing a pressure atrophy of the connective and elastic tissues. The former degenerates, appears homogenous and swollen, but does not completely lose its structure and nuclei. This is followed by a regenerative stage manifested by a loss of the edema and cellular reaction composed of capillary sprouts, connective tissue and lymphocytes. He interprets this as granulation and not inflammatory tissue. In the atrophic stage there is marked atrophy of the epidermis and the granulation tissue in the cutis has been replaced by a firm, fibrous connective tissue. All these stages may be found in the same section.

In 1923 Taussig attempted to clarify many of the terms used and stated that kraurosis was only a symptom and not a disease. He subsequently went on to differentiate kraurosis from leukoplakia which he considered a precancerous disease.

Taussig preferred the name leukoplakic vulvitis, reserving the term kraurosis for those cases in which there was complete symmetrical atrophy of the labia and prepuce with flattening of the folds. He felt that it was the leukoplakia and not the atrophy of the skin which was of the greatest importance. He studied microscopically material from 64 cases of leukoplakia, 39 of which had cancer. Occasionally variations were seen in the sections from the same case, but in general the picture corresponded to the stage of the disease. He described his findings under a hyperplastic and an atrophic stage. In the former there is an extensive subepithelial leukocyte infiltration, acanthosis, followed later by a marked increase in the granular layer. Toward the conclusion of this stage connective tissue and sclerosis increase.

As the atrophic stage approaches, there is increasing thickening of the granular layer, but a decrease of the acanthosis and round cell infiltration in the cutis; sclerosis becomes more marked. The elastic tissue, even in the earliest stages of the disease, always showed some decrease in amount between epithelial papillae and directly beneath the basement membrane. This decrease became more and more marked with advance of the disease, until it was completely lost. Taussig emphasized the absence of elastic tissue in the sub-epithelial layer of the dermis, a condition that becomes increasingly marked as the disease progresses. He believed that this absence of elastic fiber is due primarily to a loss or a special disturbance of the ovarian secretion and it produces the skin changes of inelasticity, friability, cracking, infection, pruritis and leukoplakia that constitute the disease leukoplakia vulvitis.

CLINICAL FEATURES OF LEUKOPLAKIA

Vulvar leukoplakia affects the mucosal, mucocutaneous tissues or both and is characterized by whitening, atrophy, and shrinkage of the skin with obliteration of the normal folds. There is a change in the consistency of the epidermis by which it becomes inelastic and parchment-like. The abnormal formation of horny epithelium which characterizes the development of leukoplakia on mucous and mucocutaneous surfaces, occurs in most cases on sclerosed or atrophied tissues subjected to repeated irritation.

Leukoplakia is generally bilateral, being unilateral or asymmetric in only about one-third of the cases. When bilateral, it is usually symmetric and is present in a butterfly area of parchment-like

skin. In the early stages the skin is red, swollen, dry, and excoriated. If the urethral area is involved frequency and dysuria will accompany the clinical picture. Superficial wounds, abrasions, and petichiae may be present. This acute stage may last for weeks to months to be followed by remission with or without treatment. Exacerbations may recur for many years. Hypertrophic changes in the vulva characterize the second stage. The skin and mucosal surfaces lose their elasticity and suppleness so that the usual pelvic exam is painful. The skin appears thickened, indurated and leathery due to increasing thickness of the keratin layer. The color is whitish or a mottled gray. The landmarks of the vulvar structures slowly and ultimately disappear and may be identified as small ridges only. The final stage is characterized by atrophy and shrinkage of the tissue. The skin becomes smooth and glistening and minor trauma may cause it to crack, fissure and bleed. Most of the landmarks of the vulva disappear so that the urethra stands out prominently. The vaginal orifice is narrow and inelastic. In this stage few symptoms may be present but trauma may lead to infection associated with intense, intolerable itching and burning. Long periods of quiescence may be followed by acute exacerbations.

ETIOLOGY

As to etiology, leukoplakic vulvitis has in different cases been preceded by eczema and other chronic inflammatory diseases of the vulva, by pruritis with resulting scratching and trauma, and by chronic vaginal discharge. It has been attributed to each of these conditions, but apparently none of them constitutes the essential factor in its development.

Age seems to be a definite factor, for it occurs more often in women near or past the menopause. The average age in Taussig's group was 49 years. In three-quarters of the total number of patients the menses had ceased, and in the remaining quarter there was clinical evidence of some ovarian dysfunction.

In the mouth leukoplakia has been more commonly observed on sclerosed tissue resulting from a syphilitic infection or atrophied as a result of dietary deficiency. On the vulvar mucosa, where an association of leukoplakia with syphilis is not a common finding, leukoplakia has been observed more frequently on sclerosed tissues with atrophy

resulting from a skin eruption, such as lichen sclerosis.

The main causes of repeated irritation of the vulvar mucosa are sequelae of the skin eruption, increased friction due to the closer approximation of the mucosal surfaces, and deficient lubrication. The labia minora and the folds around the clitoris provide a natural buffer with an abundant sebaceous secretion, between the internal vulvar surface. When the labia atrophy and the clitoral prepuce retracts, the anterior vulvar surfaces in particular are brought into much closer contact with the simultaneous loss of an important source of lubrication.

The lubrication of the vulvar mucosal surfaces is dependent on the integrity of the sebaceous glands and one effect of a lichen sclerosis eruption is plugging of the follicles with consequent diminution of the sebaceous secretions and dryness of the surface. The decreasing activity of the sebaceous glands with advancing age and consequent diminution of the sebaceous secretion have a similar effect, and influence the incidence of leukoplakia of the vulva in elderly women.

Scratching and rubbing are possible contributory factors in the production of leukoplakia of the vulva, but they play only a minor part in many cases. When a rough, horny, papular eruption of lichen sclerosis develops on a vulva, already atrophied as a result of a previous eruption, friction between the mucosal surfaces is intensified. The resultant reaction provoked in the damaged tissues may then be manifested by the development of leukoplakia. The area where friction is greatest, the anterior mucosal surfaces, is most vulnerable. There patches of leukoplakia may appear first at sites in this area.

LEUKOPLAKIA AND CARCINOMA

In addition to the distressing clinical symptoms already described one must consider the malignant potentialities of the lesion and the frequency with which the lesion predisposes to the development of carcinoma. When one group of investigators reports a six percent incidence of carcinoma arising from leukoplakic areas and another group reports a twelve percent incidence, one must be certain that the two groups are using the same criteria for diagnosing leukoplakia before drawing any conclusions. Certainly the clinicians that limit the diagnosis of leukoplakia to those lesions that show atypicality of

cells will have a higher incidence of squamous cell carcinoma of the vulva arising from areas of leukoplakia than the groups that call every white plaque on the vulva an area of leukoplakia.

Bonney and Berkeley regarded leukoplakic vulvitis as an antecedent condition and *the* cause of vulvar carcinoma. Graves and Smith in 1939 found the association in 16 out of 21 cases of vulvar cancer they examined. In Taussig's experience more than 50 percent of vulvar carcinomas were preceded by leukoplakia. His studies were based on a series of 40 cases of leukoplakia and 76 cases of cancer of the vulva, observed over a 30-year period.

The clinical course of leukoplakia is usually a slowly progressing one, and in some instances there are long periods where the process remains stationary or diminishes in severity. It is therefore difficult in view of the rarity of cancer of the vulva to follow any appreciable number from the stage of leukoplakia to that of malignant change or to determine accurately the number of patients with this form of vulvitis that eventually become malignant. However, over a long period of time, Taussig had occasion to see 40 cases of leukoplakia without carcinoma and 39 cases of leukoplakic vulvitis with carcinoma. He therefore concluded that in the course of the disease, eventually one-half will undergo a malignant change.

Smith and Roolock found 43 percent of all squamous cell carcinomas of the vulva associated with leukoplakia. None of these studies, however, can prove that the carcinoma arose from the areas of leukoplakia but rather that the two conditions were found to be co-existent in a large percentage of cases. McAdams and Kistner, who use cellular atypia as one of the necessary criteria in diagnosing leukoplakia, followed 397 patients with lesions of the vulva. They found a 10 percent incidence of vulvar carcinoma arising out of leukoplakic areas.

Jeffcoate has pointed out that the only reason leukoplakia can be incriminated as a cancer precursor is that it can be demonstrated histologically in 50-80 percent of specimens of cancer of the vulva.

Atrophic and hypertrophic changes may co-exist on the vulva. Whether one precedes the other routinely is difficult to determine. There is the possibility that malignant changes may

occur in atrophic as well as hypertrophic areas on the vulva. Carcinoma developing in kraurosis has been reported by Ellis.

McAdams and Kistner have also described marked epidermal atrophy and extensive acanthosis as appearing side by side. In 27 instances this change was found with associated carcinoma. Of major importance is the fact that if atrophy and hypertrophy do occur together, malignancy may develop in one, the other, or both.

Perhaps the importance of leukoplakia as a premalignant lesion was overestimated by Taussig. Presently most authors agree on a 10 percent incidence of malignant change in leukoplakia of the vulva. This is certainly a significant figure and it means that leukoplakia must be dealt with vigorously.

TREATMENT

The treatment of vulvar leukoplakia depends on the extent and activity of the lesion and the severity of the symptoms. Since there appears to be such a direct association with estrogen deficiency one naturally turns to replacement therapy. The results with local estrogen have been disappointing since it is probable that by the time the process becomes well established the changes in the skin are irreversible.

Obviously all vaginal infections must be corrected since irritating discharge may contribute to the persistence of this lesion.

Many other therapeutic approaches have been recommended with varying results. Some of these are antihistamines, vitamin A locally and by mouth, oral hydrochloric acid and of course many antipruritic ointments and lotions often containing adrenal cortical steroids.

Once ulceration, thickening, or no response to medical therapy has occurred, excision is indicated. If the lesion is quite extensive, simple vulvectomy is the procedure of choice. Many authors point out that if only excisional biopsy is performed, one must examine the margins of the biopsy material, as leukoplakia has a tendency to recur. This is probably due to the persistence of the factors that give rise to the leukoplakia originally rather than the excision having failed to remove all of the lesion.

UNIVERSITY OF ARKANSAS MEDICAL CENTER SERIES

All cases of leukoplakia of the vulva which have undergone vulvectomy at the University of

Arkansas Medical Center during the years 1950 through 1965 have been reviewed. There were 15 cases.

The age distribution of these patients at the time of vulvectomy ranges from the youngest of 40 years to the eldest of 79 years. The average age was 61.4 years. In the age group of 40-49 there were 4 patients, or 26.7 percent; from age 50-59, there were two or 13.3 percent; from 60-69, there were five, or 33.3 percent; and in the oldest age group of patients from 70-79 there were four or 26.7 percent.

It is generally felt that leukoplakia is almost entirely restricted to the Caucasian race. Of our fifteen patients all but one was white. There seemed to be no association or correlation of the disease with gravidity or parity of the patients. The average age at which onset of symptoms occurred was 57.7 years. The youngest age at which symptoms began was 39 years, the oldest was 78 years.

As might be expected, the majority of patients were post menopausal. One patient was premenopausal and one menopausal. The remaining thirteen or 86.6 percent were post menopausal. Of these thirteen patients, eleven had undergone spontaneous menopause and two had undergone a surgical menopause.

The duration of symptoms ranged from 4 months to 20 years. The average duration was 3.8 years. The patient with the longest symptomatology was that of a 59-year-old white female who had developed severe vulvar pruritis 20 years prior to vulvectomy. Five years after onset of her symptoms she noted a right vulvar lesion which was excised in 1946 and reported as squamous cell carcinoma. At this time she was treated with x-ray and radium therapy. She again had a recurrence of a right vulvar lesion in November of 1960. She was seen in our clinic in February, 1961 and biopsy of this lesion was reported as leukoplakia with areas of carcinoma in situ. A radical vulvectomy was performed and no areas of invasion were found on the vulvectomy specimen.

The major symptoms in order of frequency were vulvar pruritis, burning, and stinging and dysuria. Vulvar pruritis was the chief complaint in 100 percent of the patients.

All of the patients were treated medically for varying lengths of time with innumerable antibiotic and anesthetic salves and ointments, ster-

oids, vitamin injections, etc., but without any appreciable benefit. Three patients were treated with superficial x-ray therapy, two of which had aggravation of the disease and symptoms.

Twelve of the fifteen patients were biopsied prior to vulvectomy. Of the 12 biopsied, 5 were reported as leukoplakia, 1 revealed leukoplakia with carcinoma-in-situ, and one leukoplakia with invasive squamous cell carcinoma. The various other pathologic diagnoses were leukoplakia with atypia suggestive of secondary malignant degeneration; hyperkeratosis; hyperkeratosis with acute and chronic inflammation; and non-specific inflammation.

Of the three patients from which pre-operative biopsies were not taken, the final pathologic diagnoses were leukoplakia, kraurosis, and lichen sclerosis et atrophicus.

The final pathologic diagnoses of the vulvectomy specimens were next reviewed. Ten of the specimens were reported as leukoplakia, one with intraepithelial carcinoma, and one with invasive squamous cell carcinoma. The remaining five diagnoses are shown in Table I.

TABLE I	
FINAL DIAGNOSIS OF VULVECTOMY SPECIMENS	
1. Leukoplakia	8
2. Leukoplakia with carcinoma in-situ	1
3. Leukoplakia with invasive squamous cell carcinoma	1
4. Kraurosis	1
5. Lichen sclerosis et atrophicus	1
6. Epithelial hyperplasia	1
7. Vulva, acute and chronic inflammation	1
8. Radiation effect, acute and chronic inflammation	1
TOTAL	15

The type of surgical procedure included 12 simple vulvectomies, 2 radical vulvectomies and one radical vulvectomy with groin dissection. The two patients on whom radical vulvectomies were done had extensive vulvar leukoplakia, one having associated and coexisting intraepithelial carcinoma and the other invasive squamous cell carcinoma.

The third patient who had a radical vulvectomy and groin dissection had a preoperative vulvar biopsy which was interpreted as "hypertrophy of squamous epithelium with hyperkeratinization, one area showing atypical cells suggestive of secondary malignant degeneration." The surgical specimen showed only leukoplakia with no carcinoma.

Healing of the vulvectomy sites were considered good to excellent in all but one case. One patient,

aged 77, who had a simple vulvectomy, developed marked necrosis and breakdown of the inferior portion of the surgical site. She was hospitalized 28 days postoperatively and had granulated and healed well upon discharge.

The average number of post-surgical hospital days was 13.9 days. The longest hospitalization was 28 days and the shortest 7. Only one post-operative medical complication was listed. One elderly patient developed atelectasis with a secondary pneumonia on her first post-operative day, but responded quickly to treatment. One 67 year old patient with leukoplakia and co-existing squamous cell carcinoma, who had a radical vulvectomy, had a completely benign, uneventful post-operative course. She was discharged 18 days following surgery with excellent healing of the surgical site. Seven weeks post-operatively she had a massive coronary occlusion and expired at home. Previous history revealed a long-standing angina.

Postoperative follow-up has varied from 3 months to 7 years. The average duration of follow-up in this group is 22 months. In none of the patients has there been recurrence of symptoms or recurrence of the leukoplakic lesion.

SUMMARY AND CONCLUSIONS

1. During the years 1950-1965 fifteen patients underwent vulvectomy for leukoplakia at the University of Arkansas Medical Center. The clinical features of these cases are discussed and the type and results of therapy are reviewed.
2. The disease process of vulvar leukoplakia involves primarily the patient of the post-menopausal age group.
3. Leukoplakic vulvitis may undergo alternating periods of remission and exacerbations.
4. Many forms of medical therapy have been employed, most of which have no lasting benefit.
5. Approximately 10 percent of vulvar leukoplakias undergo malignant change to squamous cell carcinoma of the vulva.
6. Early leukoplakia occasionally may be reversible by medical treatment, but in more extensive lesions, simple vulvectomy is indicated.

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TEACHING SEMINAR

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The Humoral Regulation of Erythropoiesis

William F. Denny, M.D.*

The volume constancy of the red blood cells is a remarkable illustration of Cannon's principle of homeostasis. In the normal person, the red cell mass varies less than 50 ml. daily and destruction is exactly balanced by production. The existence of a humoral factor that regulates this delicate balance is now generally accepted, although its presence has been established through the study of stress situations and disease states rather than the normal organism. Near the turn of the century Carnot and DeFlandre¹ in France presented evidence for a humoral substance which could stimulate the formation of blood. This information, however, was not confirmed by contemporary workers and interest waned in this problem until the pioneering studies of Reissman,² Erslev,³ Jacobson,⁴ and others. They clearly documented that blood of animals rendered anemic by a variety of means, as well as the plasma of animals exposed to hypoxic stimuli, was soon found to contain a humoral activity which when injected into appropriate test animals resulted not only in reticulocytosis, but when given on a sustained basis, in polycythemia as well. These facts have been documented by many investigators around the world since that time, and the activity is now generally termed "erythropoietin".

ASSAYS FOR ERYTHROPOIETIN: Early attempts at assay involved chronic injection of plasma from anemic or hypoxic persons into appropriate test animals, and measuring the reticulocyte response or the increase in red cell mass. Because these assays required rather large quan-

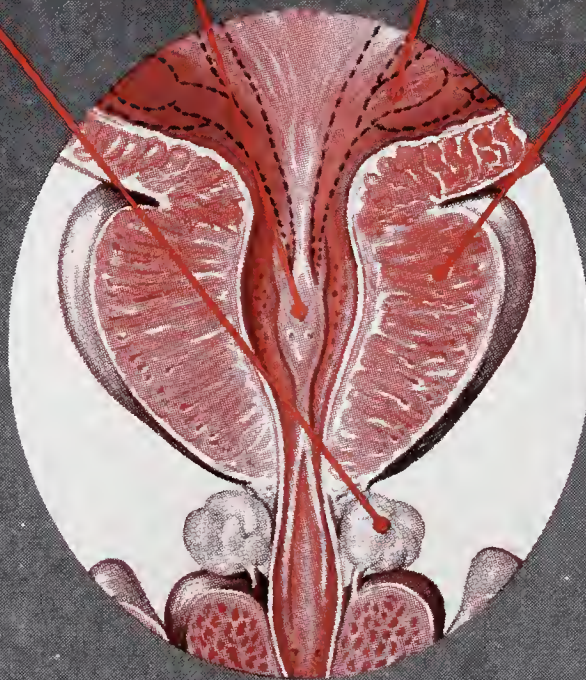
ties of plasma over long periods of time and in addition proved rather gross in their results, more refined assays have been developed. Erythropoietin has been highly concentrated, and partially purified, but is not as yet an isolated molecular substance of known structure. Since there is no known chemical or immunologic assay, bioassay of its activity remains the standard for its measurement. First, suppression of erythropoiesis in an appropriate test animal is carried out so the animal will have a heightened response to the injection of erythropoietic activity. This suppression of erythropoiesis can be done by starvation, the induction of polycythemia either by hypoxia or transfusion, pure protein depletion, or other similar methods. After suppression of erythropoiesis, the animals are stimulated by the test material presumed to contain the erythropoietically active substance. The end point of stimulation may be the production of reticulocytosis or the incorporation of isotopically labeled iron into the red cells of the test animal. Figure 1 illustrates the suppression of erythropoiesis in the fasted rat compared to the normal animal and the animal stimulated by injection of cobalt, a substance known to stimulate endogenous erythropoietin production. These methods of bioassay have proven sensitive enough to detect erythropoietin elevations in response to hypoxia, anemia, and bone marrow failure, but attempts to demonstrate its activity in normal plasma have failed except for highly concentrated specimens. Numerous attempts at developing an *in vitro* assay of erythropoietin activity have been reported.

*Hematology Section, VA Hospital, Little Rock, Arkansas.

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Precautions and Side Effects

Complete blood cell counts should be made before and after therapy, especially if a second course is necessary.

Infrequent and minor side effects include: nausea, unpleasant taste, furry tongue, headache, darkened urine, diarrhea, dizziness, dryness of mouth or vagina, skin rash, dysuria, depression, insomnia, edema. Elimination of trichomonads may aggravate moniliasis.

Dosage Forms

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Research in the Service of Medicine

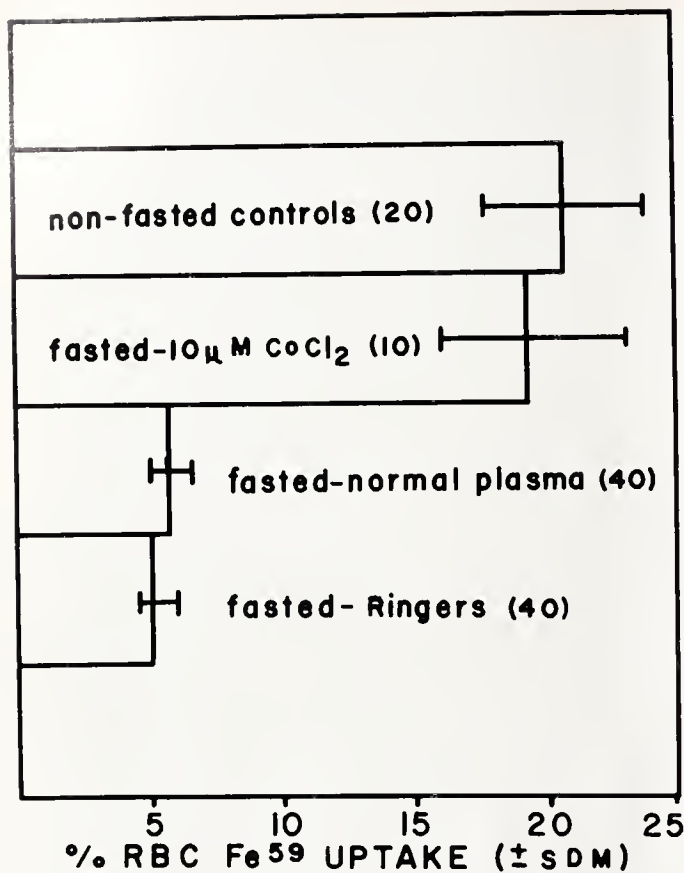


FIGURE 1

Suppression of erythropoiesis in experimental animals by fasting.

Matoth⁵ used the effect of erythropoietin on the mitotic index in bone marrow cultures in response to erythropoietically active material. As in the *in vivo* assays, the use of marrow cultures taken from polycythemic animals increases the sensitivity of the assay system. To date, these *in vitro* assays have not been sufficiently sensitive or practical to replace the bioassay method.

Erythropoietin is felt to be a small molecular weight protein and highly concentrated preparations have been shown antigenic. Neutralizing antibodies have been demonstrated to cross-react with erythropoietin from several species,⁶ and *in vivo* use of these antisera are felt to inhibit the action of erythropoietin. The development of a practical immunoassay holds great promise in the future for the investigation of the production and mechanism of action of erythropoietin.

SITE OF PRODUCTION: The evidence concerning the site of production of erythropoietin is increasingly pointing toward the kidney as the organ primarily, if not solely, responsible for its elaboration. Work from several laboratories has confirmed that nephrectomized animals seem unable to elaborate erythropoietin, although

acutely produced uremia does not abolish the ability of the test animal to produce erythropoietin.⁷ It is further known that the anephric animal will respond in an essentially normal, although quantitatively reduced fashion, to injections of exogenous erythropoietin.⁸ Parabolic animals, that is, those animals that have a common vascular connection, each animal of which can be maintained in an artificially contrived atmospheric condition, show that less erythropoietin is produced when a nephrectomized parabolic partner was hypoxic than when his normal partner was rendered hypoxic. Data from these parabolic experiments was reputed to support an extra-renal source for a small amount of erythropoietically active material.⁹ Other investigators have used isolated kidneys and perfused them with hypoxic or anemic blood and demonstrated the presence of erythropoietin in the venous return.¹⁰ Many investigators have studied tissue extracts for erythropoietic activity, and most have consistently found it to be present in extracts of anemic kidneys although reports of its presence in liver and other tissues have been made.¹¹ The cellular site of production of erythropoietin has not been determined with certainty. Evidence has been submitted for its production in the cortex of the kidney, the renal tubules, and the juxtaglomerular apparatus. Gallagher,¹² among others, has shown that patients with chronic azotemic anemia are unable to elaborate sufficient erythropoietin to be measured, and it has been demonstrated that patients in the anephric state are unable to form detectable erythropoietin. These same patients, after a successful renal transplantation, can regain their ability to form erythropoietin and this has furnished rather direct evidence in the human that the kidney is an organ of central importance in its production.¹³ These studies, coupled with the clinical observations of polycythemia being present commonly in patients with a variety of renal diseases, particularly hypernephroma, polycystic kidneys, and that some of these patients can be demonstrated to have elevations of erythropoietin in their blood, leads to the inescapable conclusion that the kidney is the major site of production of this material so important for the stimulation of erythropoiesis.

CHEMISTRY AND MECHANISM OF ACTION: Erythropoietin is known primarily as an activity, not as a crystallized or purified substance.

It has been recovered from the plasma and urine of patients and animals suffering from a variety of anemias, and it has been concentrated on a high order of magnitude, using a variety of precipitation and chromatographic techniques. To date, there has not been final progress toward purification and identification of the active portion of this concentrate. It is known to be a heat stable, nondialyzable substance with the chemical characteristics of a glycoprotein. It remains stable in the frozen or lyophilized state for long periods of time and is inactivated by trypsin or chymotrypsin digestion. It moves electrophoretically as an alpha-2 globulin and is stated to have 68% protein, 29% carbohydrate, and 13% sialic acid. Because of these chemical features it has been identified with the glycoprotein group of substances. It is inactivated by neuraminidase, and a variety of techniques have suggested as its molecular weight a figure between 10,000 and 40,000.

The sensing of a need for an increase in red cell supply is commonly accepted as being related to the effective tissue oxygen supply. This seems reasonable because of the role of the red cell in transporting oxygen to the tissues, but in addition this teleologic reasoning is supported by the observation of polycythemia being produced in man and animals on exposure to hypoxia. For many years it has been known that people residing at altitudes above 12,000 feet have consistently higher red cell mass levels than people residing at sea level. In addition, many laboratory studies have documented that experimental procedures resulting in hypoxia, severe anemia, or marked increase in metabolic demand, may result in the stimulation of erythroid release by the bone marrow. Central to all of these is felt to be a reduced oxygen supply in relation to oxygen demand. However, since even minor loss of blood is promptly replaced, another sensing mechanism of red cell need probably exists. One hypothesis could be that there are red cell volume receptors sensitive to these small changes located at some undetermined site in the body, such as the renal cortex. Many biological control systems have been shown to have a negative feed-back mechanism and this is probably true in the regulation of red cell mass as well. Whitcomb¹⁴ has shown an inhibitory substance to erythropoietin present in the blood of man and animals in direct relationship to increasing red cell volume. He postulates an inhibi-

tory feed-back as the red cell volume increases, in response to erythropoietin stimulation. The mechanism by which erythropoietin accomplishes its stimulation of erythropoiesis is incompletely understood. The erythroid portion of the bone marrow comprises approximately one-fourth of the total amount of marrow and there is known to be an orderly progression of maturation and division of the nucleated red cell precursors, eventually resulting in the non-nucleated reticulocyte being released in the peripheral blood in proportion to the number of cells destroyed each day. Current thinking would support there being a stem cell present in the marrow which is capable of differentiating into erythroid precursors on demand. The majority of the nucleated precursors undergo from two to four mitotic divisions as well as periods of maturation prior to release from the bone marrow. Erythropoietin could cause an increase in this proliferation and release of red cells by an increase in the total number of stem cells, an increase in the rate of mitotic division, an increase in the rate of maturation of the nucleated red cell precursors, or by an increase in the release of non-nucleated reticulocytes from the marrow. Studies utilizing radioactive iron¹⁵ have demonstrated that there is a greater dilution of the iron tagged in the bone marrow pronormoblasts than can be explained by stimulation of mitosis or of maturation, thus suggesting that the dilution of tagged pronormoblasts is occurring because of a rapid increase in stem cell differentiation into untagged pronormoblasts. This stimulation may actually skip the entire process of maturation with the premature release of heavily iron-tagged cells into the peripheral blood promptly after stimulation with erythropoietin. This suggests that there may also be an effect on erythroid maturation. Stohlman has emphasized this role for erythropoietin in a series of studies and has demonstrated that the stimulated marrow produces macrocytic elements under these demand situations which have a reduced red cell life span in the peripheral blood. There is little evidence supporting an action of erythropoietin in accelerating the rate of hemoglobin synthesis. Gordon¹⁶ and others have shown an increased reticulocyte release from isolated bone marrow segments resulting from perfusion with erythropoietin-rich materials. Suffice it to say that the exact mode of action of erythropoietin is not

known, but the bulk of evidence supports an effect on the stem cell and accelerated maturation.

CLINICAL STUDIES: Erythropoietically active material has been demonstrated in the plasma and urine of patients with a variety of anemias. These include acute blood loss anemia, chronic iron deficiency, hemolytic anemias, anemias characterized by chronic bone marrow failure or bone marrow block, and in all of these clinical conditions there is a rough but regular correlation between the severity of the anemia and the degree of erythropoietin activity present in the patient's plasma. Many well compensated hemolytic anemias fail to exhibit erythropoietin elevations in the plasma, but when this is coupled with ineffective erythropoiesis such as is seen in thalassemia, high levels of activity are found. Certain conditions are known to less frequently have increased levels of erythropoietin, and these would include such conditions as the anemia of inflammatory disease, the anemia associated with disseminated malignancy, and certain endocrine diseases. An important exception to finding of elevated levels of erythropoietin in the anemia of chronic bone marrow failure is found in the patient with prolonged renal insufficiency and azotemic anemia. This is not surprising in view of the evidence presented for the importance of the kidney in the formation of this material. The only exceptions to this deficiency in uremia would appear to be in acute or subacute renal insufficiency when there frequently is sufficient reserve in the ability of the kidney to produce erythropoietin in response to need.

There is much greater confusion when one inspects the data concerning the role of erythropoietin in the production of polycythemia. Most investigators have failed to find elevations of this material in the plasma of patients with polycythemia vera, although occasional elevated levels have been reported in various types of secondary polycythemia. One report¹⁷ indicated that the majority of patients with polycythemia secondary to hypoxic congenital heart disease had elevations of erythropoietin activity in their plasma. Frequent elevations have been noted in diseases characterized by pulmonary insufficiency and arterial hypoxia although there are numerous instances of severe hypoxia with neither polycythemia nor erythropoietin elevations. It has been observed that the bone marrow may have a normal oxygen

tension despite severe arterial hypoxia and it is possible that the cellular site of erythropoietin production may either be protected in some way from the decrease in arterial oxygen or intermittently insensitive to the stimulation of hypoxia. Small levels of plasma erythropoietin have been demonstrated in secondary polycythemia most conclusively after recent phlebotomy and this would seem to correlate better with the observations on an inhibitory factor present at higher red cell mass levels. The lack of demonstrable erythropoietin in patients with polycythemia vera would lend some support to an autonomous regulation of erythropoiesis rather than a humoral regulation. There are numerous other causes of secondary polycythemia and it is interesting to note that the most frequent association in these unusual causes of polycythemia is with diseases of the kidney. This association of erythremia with renal disease has been described with renal carcinoma, hydronephrosis, nephrotic syndrome, renal adenoma, and with unilateral and polycystic kidney disease.^{18,19} In numerous of these instances elevations of erythropoietin activity have been described either in the urine, plasma, cyst fluid, or tumor extract. Instances of polycythemia with cerebellar hemangioblastoma²⁰ have been reported and one case is known in which there was assay data showing erythropoietin activity in the cyst fluid from the tumor. Scattered reports of secondary polycythemia with other conditions are known, but erythropoietin measurements have not been done. Figures 2 through 4 show erythropoietin assay data collected on 65 patients and tested by the fasted rat assay. As can be noted, erythropoietin titers are most commonly found in hypoproliferative marrows due to mar-

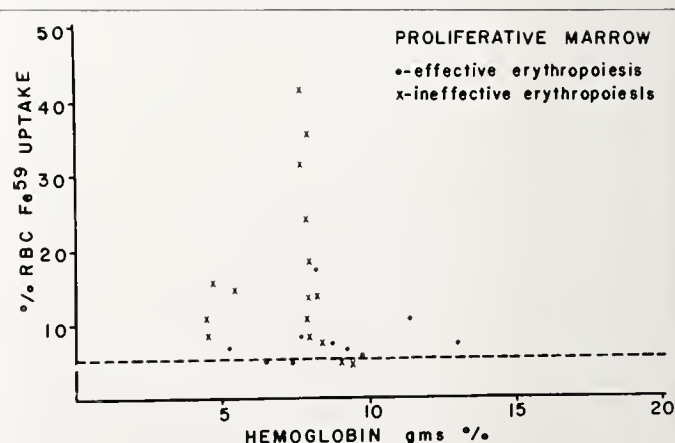


FIGURE 2
Erythropoietin assay results in 26 patients with anemia and a proliferative bone marrow.

row failure and in the proliferative category when the response is ineffective. In no instance of either primary or secondary polycythemia was erythropoietin found. These findings suggest that when

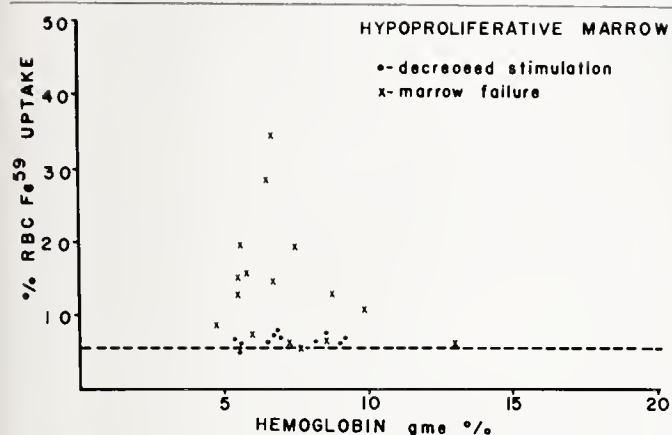


FIGURE 3

Erythropoietin assay results in 27 patients with anemia and a hypoproliferative bone marrow.

the healthy kidney is able to elaborate erythropoietin in response to need, the finding of plasma elevations depends more on the ability of the bone marrow to consume and utilize the erythropoietin

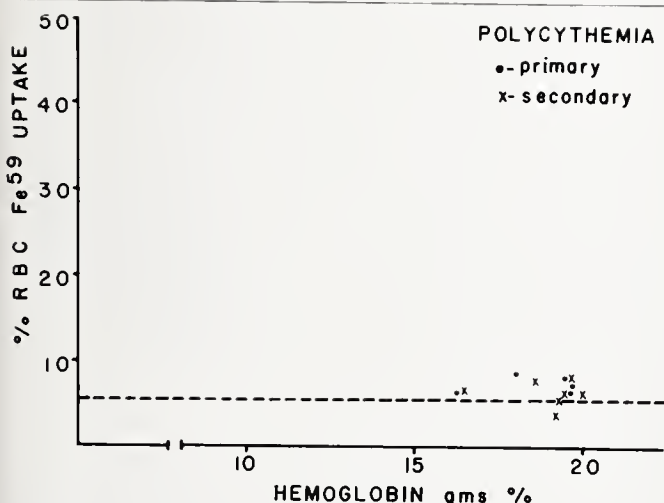


FIGURE 4

Erythropoietin assay results in 12 patients with polycythemia.

than on its excessive production. Possibilities for therapeutic use of this material, if and when it is purified and available in large quantities, would appear limited to those conditions in which kidney was unable to elaborate the substance in sufficient quantity to stimulate a seemingly normal bone marrow.

Figure 5 is a schematic diagram which seems to utilize most of the available data regarding the production and utilization of erythropoietin.

There are important gaps in our understand-

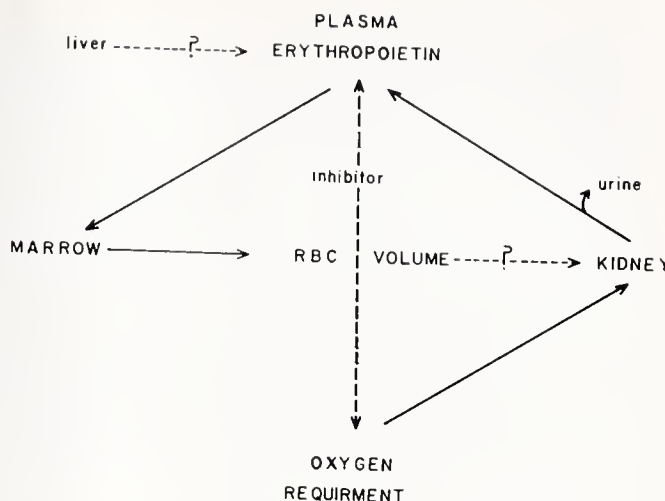


FIGURE 5

A schematic representation of the mechanism of action of erythropoietin.

ing as to man's sensing mechanism for the detection of anemia, the exact cellular site of erythropoietin production, and its total effect on erythropoietic tissue, but the importance of this humoral substance in the regulation of the red cell mass seems well established.

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Diagnostic Significance of the Histological Changes in Liver and Spleen in Leukemia and Malignant Lymphoma

N. D. Kostich and H. Rappaport (470 N Charter, Madison, Wis). *Cancer* 18:1214-1232 (Oct) 1965

A study of 341 autopsied cases of leukemias and malignant lymphomas is presented. Antemortem blood and marrow smears were reviewed and compared with microscopic patterns of leukemic infiltrations in the liver, spleen, lymph nodes, and other organs. Their diagnostic and possible prognostic significance was evaluated. This was compared with clinical course, duration of the disease, and peripheral blood cell counts. When antemortem blood and marrow smears and post-mortem histological sections were evaluated, 85.7% of the cases with acute leukemia could be classified as cellular types, whereas 14.3% were designated as "stem" cell type. Contrary to the conclusions of recent publications, the distribution of the leukemic infiltrates in the liver and spleen alone is not a reliable criterion for establishing the correct diagnosis and classification in cytologically controversial cases of acute leukemias, nor is it the best criterion for prognostic purposes.

The Pathogenesis of Secondary Brain Stem Hemorrhages as Studied in an Experimental Model

G. K. Klintworth (Duke Hosp, Durham, NC) *Amer J Path* 47:525 (Oct) 1965

In order to obtain more precise information regarding secondary brain stem hemorrhages, an experimental model was designed wherein it was possible to consistently reproduce secondary brain stem hemorrhages under controlled conditions in the dog. The occurrence of secondary brain stem hemorrhages coincided with alterations in the systemic blood pressure and was apparently dependent upon the volume and rate of expansion of the intracranial lesion. The alleviation of intracranial pressure during a particular period in physiological decompensation invariably accentuated brain stem hemorrhages and was often critical to their production. Although the present study does not evaluate all factors which might be cogent to the pathogenesis of secondary brain stem hemorrhages, the experimental data strongly suggest that the hemorrhages are dependent upon an adequate blood flow through a downward displaced brain stem. The present study also demonstrates that supratentorial expanding lesions may be fatal and yet not manifest secondary brain stem hemorrhages.

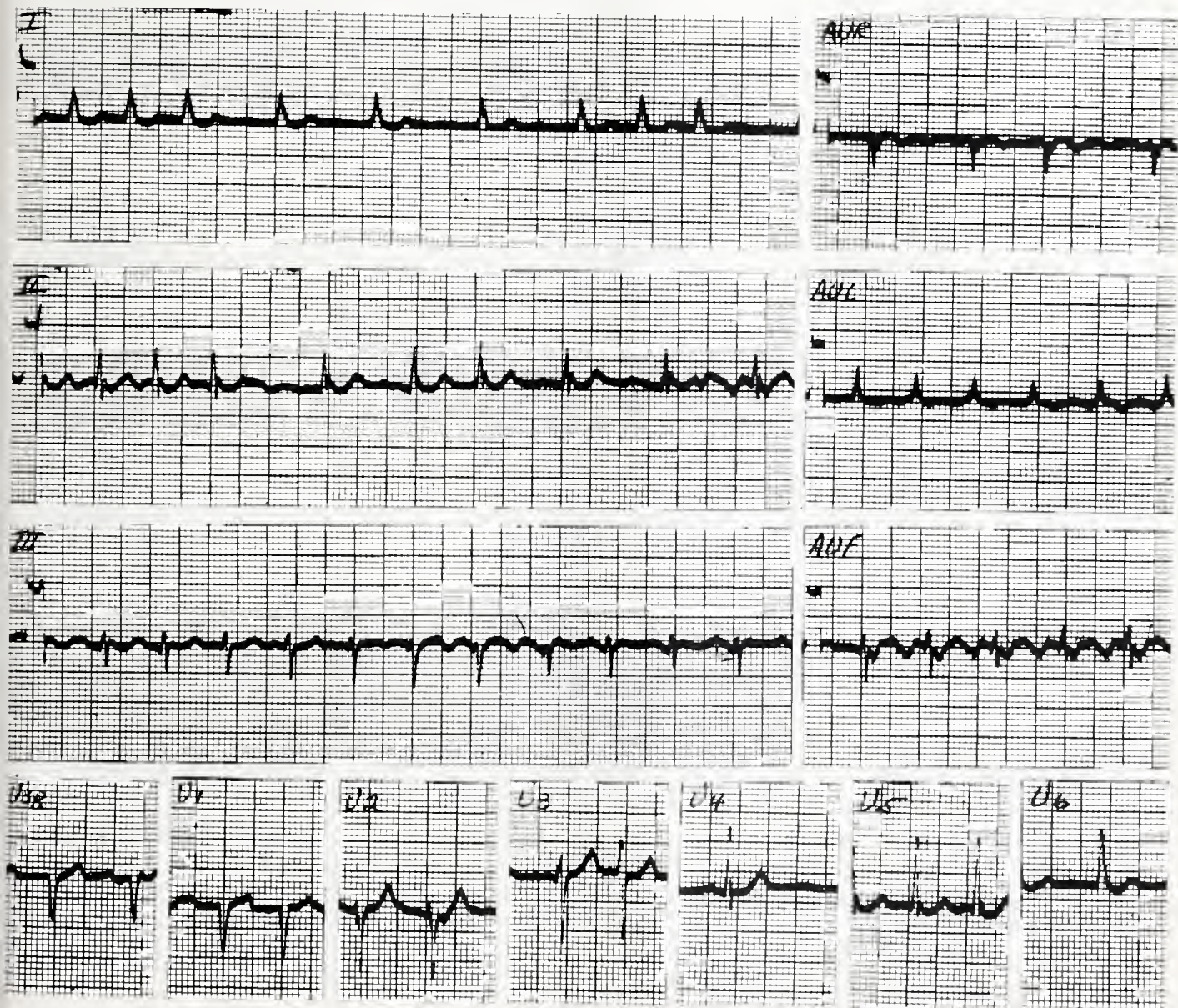
ELECTROCARDIOGRAM



OF THE MONTH

AGE: 77 SEX: M BUILD: Medium BLOOD PRESSURE: 160/100
 CARDIAC DIAGNOSIS: Arteriosclerotic Heart Disease, Myocardial Infarction
 OTHER DIAGNOSES: Parkinsonism
 MEDICATION: None
 HISTORY: Acute substernal pain 3 hours previously, not relieved by nitroglycerine

ANSWER ON PAGE 343

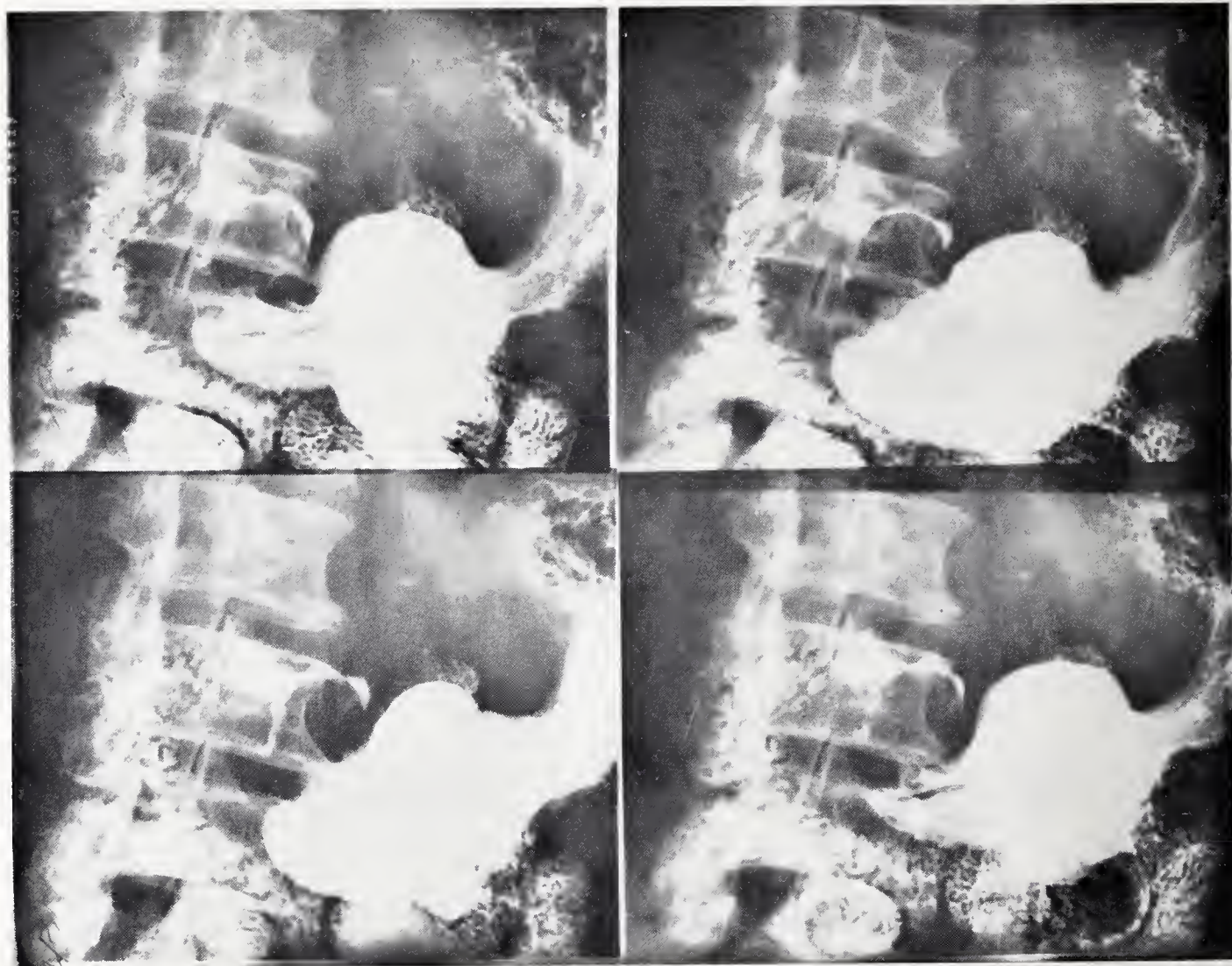


The Department of Medicine, University of Arkansas Medical Center
 James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 343



12-11-98

63-year-old male

HISTORY: The patient had experienced mid epigastric pain, nausea, vomiting and tarry stools for three weeks.



TYPHOID FEVER

Although there has been much improvement in Arkansas water supplies and sewerage systems, there remains a small number of sporadic typhoid cases each year. The alarming thing is that there is now an upward trend. The inclined incidence cannot be interrupted until each and every typhoid case is studied thoroughly from an epidemiological standpoint to identify the source. Ever since the incidence of cases has been low and water and sewerage conditions improved, the importance of the role of the chronic typhoid carrier has been stressed by Dr. A. M. Washburn and, since his retirement in June of 1960, by Dr. Wm. L. Bunch, Jr., as Directors of the Division of Communicable Disease Control of the Arkansas State Department of Health. The chronic typhoid carrier remains unidentified in the community as long as no food is handled or the individual practices good hand-washing, but the failure of these carriers to wash their hands properly after using the toilet begins the exposure of new susceptibles and ultimately produces a case. Each new case sets the stage for renewed search for the source. Carriers are frequently not suspected because our modern population seems to neither remember where it ate last nor to care to attempt to recall such events that to them are an unnecessary chore. Once the patient can reconstruct his recent gastronomic adventures we can begin to get fecal cultures on the possible sources. These source suspects may need to have repeated cultures to properly rule out or demonstrate their being shedders of *Salmonella typhosa*.

In years gone by many people acquired immunity to typhoid by the oral route through exposure to a few living typhoid bacilli and repeated successively larger doses. We are thankful that this risky procedure is no longer commonplace. Typhoid vaccine is admittedly one of the least efficient vaccines antigenically, nevertheless, it is the best we have at present and should be utilized for the prevention or modification of cases that result

from the exposure to larger sized inoculi. Physicians should advise their patients of the need to utilize the best protection available when they are traveling about, especially when they may drink natural waters either at home or abroad.

Never underestimate the incidence of subclinical cases of typhoid fever, or for that matter, any of the enteric diseases. They far outnumber the reported cases. Clinical cases should be given the benefit of a fecal culture before antibiotic therapy is started since diagnosis based on serologic tests is presumptive at best, even with the classical rise in titre of the second specimen.

Considering that there are about 900 serotypes of *Salmonella*, it is well to reemphasize that *S. typhosa* "downstages" the others, dramatically speaking, by virtue of its seniority perhaps more than due to severity of symptoms. The more precisely the causative organism is identified, as it should always be in enteric diseases, the more we recognize that any one of the *Salmonella* may and frequently does produce serious disease including deaths. Likewise, cultural identification has revealed a greater incidence of asymptomatic and subclinical cases of typhoid fever than was formerly believed to exist. These diagnostic problem cases as well as the asymptomatic ones are potential sources of spread with unrestricted activities since they are not suspected to be harboring viable virulent organisms.

Arkansas' distribution of recorded cases and known active carriers is presented on the accompanying map. Arkansas has the dubious distinction of being one of the seven states out of the 50 United States that has a reported case rate per 100,000 population of .50 or greater for 1964, the other six states being Georgia, Indiana, New Mexico, North Dakota, South Carolina, and Tennessee.

In the United States during 1964, there were 57 reported outbreaks due to *Salmonella* serotypes. Of these, 6 outbreaks were due to *S. typhi*, ac-

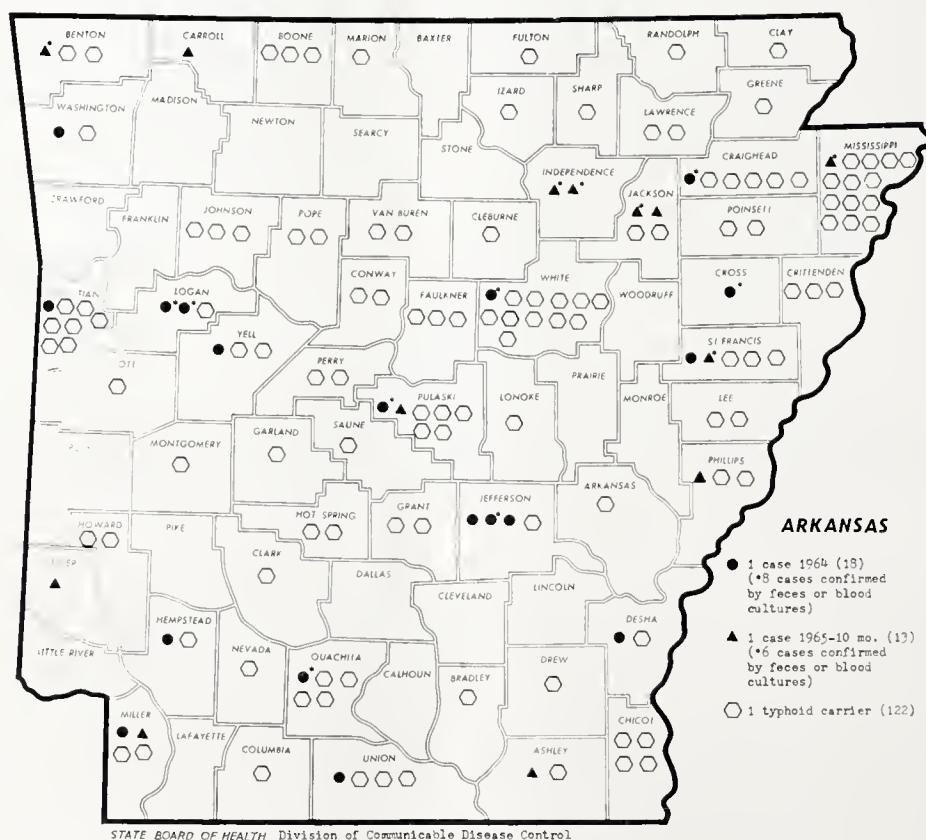
counting for 59 illnesses. Two of these six were family outbreaks involving members of only one household, and four were general outbreaks involving more than one household. Arkansas had two family outbreaks of typhoid fever during 1964.

Reduction of outbreaks has resulted largely from cleaning up the environment by sanitation, such as improvement of water supplies, including selection of adequate sources, assuring protection against contamination, purification of the raw water, and finally chlorination, but also of necessity from lowering the load of organisms dumped in the environment through sewage disposal systems. Other contributing factors to the control of large outbreaks are pasteurization of milk, supervision of food processing plants, stimulation of educational approach to upgrading storage, preparation and serving of foods, identification and surveillance of typhoid carriers, and general education of the public to expect and demand these sanitary measures. Also important, though not always recognized, is the lowered incidence itself which reduces the probability that an incubating case of typhoid will be a food service worker. The role of immunization in the control of typhoid fever epidemics is less dramatic

than in smallpox because the efficacy of the vaccine is less in antigenic magnitude and duration, nevertheless, its usefulness in the prevention or modification of the disease in household contacts of cases and carriers should be better understood and utilized. Lest we forget, treatment of the cases is for the alleviation of human suffering and serves only a limited degree in control, that by limiting infectiousness after the organism has become entrenched in this and perhaps other bodies. No disease has as yet been treated out of existence; other factors that act in some manner to interrupt its transmission appear to be the more practical approach to control.

Continued appearance of sporadic cases of typhoid fever can be expected as long as known and unknown carriers exist and the efforts at surveillance are nullified by human frailties. Diagnostic excellence through utilization of cultural procedures coupled with a high index of suspicion and prompt reporting of cases and "suspected cases" denotes the quality of medical practice in the community as surely as does technical skill and therapeutic armamentarium. Heroic measures for this drastic devastating disease usually can be avoided by the simple process of immunization combined with improved sanitation.

RECORDED TYPHOID FEVER CASES, 1964 and 10 MONTHS 1965, and ACTIVE TYPHOID CARRIERS





EDITORIAL

The American Medical Association Meeting— December, 1965

Alfred Kahn, Jr., M.D.

It is rather difficult to capsuleize an American Medical Association meeting. The Fall meetings of the American Medical Association are smaller and less complex than the early Summer meeting. The dichotomy of science and business manifests itself at each meeting. While the research workers and teachers put on a usually excellent program, the House of Delegates and officials meet to thrash out policy.

This meeting found the House of Delegates especially interested in the Medicare program. Some physicians urged an early court test of the bill or parts of the bill in an effort to have it declared unconstitutional. Others recommended a more deliberate later court test.

Of particular interest with regard to Medicare was the matter of billing:—should the physician bill the patient directly? There was unanimity that direct billing was ethical and permissible if the physician so desired; this was in contrast to submitting the physician's bill directly to a third party as, for example, a government agency or agent.

There was a good deal of debate as to whether the physician's bill should be based on the so-called "prevailing fee" or his "usual and customary fee." The prevailing fee means that there is, so to speak, a set maximum fee based on the average fee charged in an area. Whereas the usual customary fee means that the physician will charge a Medicare patient or a patient with insurance the fee that he customarily charges all patients; this latter implies adjustment for income level and complexity of the services. This matter was of particular interest because many dele-

gates feared that if a "prevailing fee" was established that it would insidiously lead to a fixed fee based on the prevailing fee schedule; insurance companies and carriers would settle on the prevailing fee and prevent the flexibility of charge which is considered to be a physician's privilege by time honored precedent. The most interesting comment on the controversy came from some areas which used the customary and usual fee principle and found that where the maximum fees were not published, there was virtually no abuse of the fees rendered to insurance carriers; they found no need for a published, set maximum fee schedule—in fact, the success of the program seemed to depend on NOT publishing maximum fees. We in Arkansas should follow these discussions carefully.

Perhaps next in interest from a point of view of most delegates was the matter of utilization committees. This concept which has been employed for a long period in certain areas of the United States (parts of Pennsylvania, etc.) is now embodied in the Medicare law. The basic theme which seemed to run through most of the discussions was the urge that utilization committees be educational committees rather than a punitive committee. The clear implication of the discussions on utilization committees was that the concept is rather new to most folks in the United States; being new, they wanted the concept safeguarded to prevent injury to the individual physician's practice, and there can certainly be no argument in this concept. Moreover, there was moderate discussion about the absolute necessity for physicians manning the utilization committee;

the discussion also involved whether or not the physician should be from the institute involved. It was felt that physicians would object to lay individuals being on utilization committees, and particularly if they were not closely associated with the hospital under scrutiny. There was not much discussion as to internal auditing by utilization committees or some committee delegated by the utilization committee. The internal auditing concept means that diagnoses, tests, and procedures ordered by physicians are checked to determine if they are made in the proper and expeditious fashion.

Much of the discussions concerning both Medicare and utilization committee work was based on principles or ethics. The underlying theme being that it was, for example, "unethical for a physician to contribute his efforts to a program of coercion to force other physicians to comply with the provisions of any program which interferes with the fundamental principles of the doctor-patient relationship."

At this meeting there were as usual a large number of matters of less importance which were brought up in the form of resolutions, reports of the committees of the house, reports of the Board of Trustees, and the speeches by various officials. One delegation urged that the American Medical Association request that a separate cabinet post on health matters be set up and that this post be held by a qualified doctor of medicine. Currently health matters are handled under the Health, Education, and Welfare Department, and health matters are, in a certain sense, under lay control. One delegation urged that uniform hospital billing and cost accounting be set up in some manner. It was felt that a number of patients did not really understand their bills. This misunderstanding may cause acute problems in the future if hospital-based specialists submit separate bills. There was a good deal of discussion in the House of Delegates concerning these hospital-based specialists; radiologists and pathologists are particularly anxious to submit their own bills for services rendered to patients and this, of course, has the sanction and approval of physicians in general—in contrast to the present procedures of paying hospital-based specialists a set fee and having the hospital collect and keep all fees charged for radiological and pathological studies; these fees ordinarily earn money for the hospitals and are in excess of

the salaries paid. The problem which may arise in the future is how to explain to the patient what his hospital services are for with particular reference to whether certain professional fees are included, certain laboratory tests, etc., etc.

Another interesting resolution was that which urged the American Medical Association to ask voluntary insurance companies to continue to offer health insurance services to folks over 65 years of age instead of cancelling at the age of 65. This failure of the insurance companies to offer good policies to folks over 65 years of age and the cancellable clause of health insurance companies have, in this writer's opinion, been the main reason for the advent of Medicare. It is unfortunate that some type of good non-cancellable insurance for folks over 65 years of age was not available long ago. It came too late.

A discussion arose on the floor of the House of Delegates pertaining to hospital assessments. Some hospitals have apparently charged a bed fee to physicians. This bed fee was based on the number of bed days per month used by a particular physician's patients. He was charged accordingly. One facet of the debate was whereas it might be unethical for the hospital to charge the physician a bed fee to enlarge the hospital or improve it in some manner, it might not be improper for a staff of physicians to charge bed fees in order to give a sum of money to some worthwhile hospital use. Many physicians resented any type of fee assessed to number of beds used by him.

A rather humorous suggestion was made by one delegation with regard to utilization committee standards. He suggested that the utilization committee use as a basis of its studies the length of stay and type of work-up employed in government hospitals; the real meaning of this was that the Veterans Administration Hospital has kept all patients in the hospital considerably longer than private hospital and, in all probability, they did many more tests than private hospitals. Obviously, a utilization committee comparing private hospital stay to Veterans Administration Hospital stays would be rather ludicrous.

Some thought was given to who could qualify for membership in the American Medical Association. It was felt that scientists in fields aligned to medicine and who had achieved a large measure of distinction should be considered as candi-

dates to membership to the American Medical Association.

A number of rather lengthy reports were submitted by various councils. The council on medical education submitted a revision of the essentials of an accredited curriculum and occupational therapy, and also submitted a revision of the essentials of an acceptable school for medical record technicians. Other council reports included a critique on the planning for medical progress through educational reports, perinatal

study committees in a hospital, physician relationship on a hospital advisory council, determination and incidence of medical endogeneity, utilization committee matters, health education in classes and universities, the health, disease, cancer, and stroke amendments, etc.

The Board of Trustee reports were important but of perhaps less intense interest at this time.

This session of the American Medical Association was as usual interesting, informative, and at times a center of hot debate.

MEDICINE IN THE



Memorial and Honor Fund of the University of Arkansas School of Medicine

The following gift has been received by the Memorial and Honor Fund of the University of Arkansas School of Medicine:

In memory of Edward Kellum Hyatt
Miss Arlene Robertson
Monticello, Arkansas

The Dale Miller Fund for Kidney Research

The purposes of the Dale Miller Fund for Kidney Research are stated in the Articles of Incorporation of the Fund:

"To make funds available for the support of kidney research by post-doctoral research fellow; to establish an annual lectureship in the field of kidney research at the University of Arkansas Medical Center; and to make funds available for such lectureships, including the payment of travel expenses and honorariums; to provide funds for special requests for kidney research; to provide funds for the purchase of equipment and supplies for the use in kidney research; to explore and support areas of kid-

ney research which are not now being otherwise effectively explored or financed and to supply personnel, equipment and supplies necessary for such kidney research leading to completed research programs and resulting publication and dissemination of the results of such research so as to increase medical knowledge in the field of kidney diseases."

Report of Meeting of Arkansas Obstetrical and Gynecological Society

The Annual Fall Meeting of the Arkansas Obstetrical and Gynecological Society was held at Fort Smith on September 24 and 25, 1965. Guest speaker was Doctor Kenneth E. Cox of Kansas City, Missouri, Chairman of District VII, The American College of Obstetricians and Gynecologists, who spoke on "Vaginal Hysterectomy—Indications and Techniques". The meeting was a joint meeting with the Tulsa Obstetrical and Gynecological Society. Other participants included Doctor Dixon N. Burns and Doctor Timothy H. Dennehy of Tulsa; Doctor Stacy Stephens and Doctor Byron Hawks of Little Rock; Doctor Robert Sherman and Doctor W. P. Phillips of

Fort Smith; and Howard Cockrill, Jr., Medical Student and student research Fellow at the Medical Center during the summer. The President's reception and banquet was held at the Hardscrabble Country Club. Following the meeting members attended the Arkansas-Tulsa game at Fayetteville.

Officers and Executive Board members for 1965-66 are: Doctor Hoyt L. Choate of Little Rock, President; Doctor Deane Wallace of Little Rock, Vice President and President-Elect; Doctor Mose Smith, III, of Little Rock, Secretary; Doctor Robert L. Sherman of Fort Smith, Immediate Past President; Doctor Arthur Hoge of Fort Smith, Immediate Past Secretary; and Doctor John B. Nettles of Little Rock, Executive Secretary. Doctor Stacy Stephens of Little Rock was elected to membership and Doctor Kenneth E. Cox, the guest speaker, to Honorary membership.

Medical School Deans' Tenure of Office

At the beginning of the 1965-66 academic year U.S. medical school deans had accumulated a tenure of office averaging 5½ years with service at individual schools ranging to a maximum of 22 years. A study made in 1962 found the average duration of dean's tenure to be nearly 7 years with service at an individual school ranging to a maximum of 27 years. In the three year period of October 1962 to September 1965, the 88 existing operational schools of medicine experienced a total of 33 deanship changes. These changes included the formal appointment of 30 deans, 2 acting deans, and the existence of a presently unfilled vacancy. Data pertaining to deans appointed to 11 new schools in development are specifically excluded from this analysis.

The assimilation of a considerable number of new deans has resulted in corresponding modifications in the distribution of length of deans' tenure. In 1962, 36 per cent of the deans had served for more than 8 years while a slightly lower proportion of 35 per cent had served for 4 years or less. In 1965, the tenure pattern had shifted so that 48 per cent of deans had served for less than 4 years and only 27 per cent had served for more than 8 years.

THE MONTH IN WASHINGTON

Washington, D.C. — Federal agencies relaxed regulations for sale of Ipecac ordered warning

labels on certain antihistamines, and cracked down on two patent medicines.

The Food and Drug Administration decided that ready availability of Ipecac as a poison remedy outweighed the dangers of possible misuse and placed it back on the list of drugs for sale over the counter without a prescription.

Since Ipecac was placed on a prescription-only basis in January, 1964, the American Medical Association, the American Academy of Pediatrics, and the Association of Poison Control Centers had urged that the vomit-inducing drug be returned to its former status.

Under the new FDA ruling, FDA's Bureau of Medicine told the Pediatrics group in Chicago that FDA decided it would be in the public interest to permit Ipecac to be sold over the counter in one-fluid-ounce bottles with special warnings on dangers of its misuse.

The FDA also ruled that in the future antihistamines containing meclizine, cyclizine and chloro-cyclizine must bear labels warning against use by pregnant women without medical advice. However, they were left on the over-the-counter list. The FDA said massive doses of these drugs in test animals had produced congenital abnormalities, but there had been no evidence they have caused abnormalities in human babies.

Chas. Pfizer & Co., Inc., one of the companies that manufacture such antihistamines, protested the decision as not being "in accordance with the medical facts."

A House Government Operations Subcommittee headed by Rep. H. L. Fountain (D., N.C.) recently had criticized the FDA for its handling of these antihistamines, contending that stronger warnings were needed and indicating that they should be prescription items.

The FDA ordered a halt to the sale of Allergimist "A" and "B", widely advertised as "cures" for hayfever, bronchial asthma, migraine headaches and allergic dermatitis.

The product has been actively promoted through newspaper, radio and TV ads without having been passed by the agency as either safe or effective. The product, sold without a prescription, was being distributed by the Brunson Corporation of Miami Springs, Fla. FDA said the same concern previously distributed Allergimist (with two "I"s) until an injunction in September, 1964, was obtained against its interstate shipment.

The Federal Trade Commission ordered the J. B. Williams Co. of New York City to stop allegedly misrepresenting the effectiveness of "Geritol" liquid and tablets. The Commission ruled that Geritol television commercials and newspaper advertisements falsely represent that all cases of tiredness, loss of strength, run-down feeling, nervousness and irritability indicate a deficiency of iron and that the common, effective remedy for these symptoms is Geritol.

Geritol is not beneficial except in the small minority of persons whose tiredness symptoms are caused by a deficiency of iron or one or more of the vitamins contained in the preparation, the FTC said.

* * *

More and farther-reaching health legislation was enacted into law this year than ever was acted upon by a previous Congress.

Medicare and the heart disease, cancer and stroke programs topped the list of such legislation enacted into law, but there also were other important new health programs authorized. Several existing ones were expanded.

Approved health legislation included:

—A \$787 million aid program for medical, pharmaceutical and other health schools. It authorized for the first time federal scholarships for students and operating funds for medical schools.

—A \$105 million program of aid for medical libraries.

—A \$250 million, three-year extension of grants for construction of health research facilities.

—Authorization of strict Federal controls on manufacture and sale of barbiturates and amphetamines.

—Requirement that cigarette packages, beginning Jan. 1, 1966, carry a health hazard warning.

—Extension of the vaccination program and expansion of it to include measles.

—Annual appropriation of a record \$1.2 billion for the National Institutes of Health.

—Three new assistant secretaries of Health, Education and Welfare—one for health affairs.

—A four-year \$92.5 million program of aid to municipalities for construction of garbage disposal plants and research in the field.

—Greater Federal powers in the water pollution field and \$300 million to help communities build sewage plants.

—New Federal powers to control air pollution,

including requirement that new autos have devices to reduce exhaust fumes.

—Expansion of the Federal vocational rehabilitation program, including \$300 million in grants for building and initial staffing of rehabilitation facilities and workshops.

—A four-year, \$173 million program for initial staffing of community health centers.

—An Administration on Aging in the Health, Education and Welfare Department.

—Appropriation of \$157 million for Project Headstart—nursery school training and medical examinations of pre-grammar school children from low-income families.

—A \$69 million hospital program for the Appalachia area.

—Automatic rank of lieutenant general or vice admiral for surgeons general of the army, navy and air force.

—Extension for three years of the program of grants for health services for domestic migrant agricultural workers.

—A one-year extension of program of grants for general health aid and for community health services.

* * *

Community vaccination programs against measles have been recommended by the Surgeon General's Advisory Committee on Immunization.

In extending the Federal vaccination program for polio, diphtheria, tetanus and whooping cough, Congress this year expanded it to include measles.

The Committee said that measles is one of the most important causes of serious illness in children and recommended that continuing "maintenance" programs aimed at vaccinating children about one year of age be established in all communities.

The Council of the Arkansas Medical Society

The Council of the Arkansas Medical Society met in the Hotel Marion in Little Rock, Arkansas, on Sunday, October 31st. The following were present: Thomas, Hyatt, Whittaker, Kennedy, Applegate, Long, Fowler, Bell, Fairley, Norton, Saltzman, Kemp, Millar, Townsend, Shuffield, Ellis, Verser, Wade, Jr., F. E. Griefenstein, Edgar Easley, Michael D. Simmons, B. G. Parker, Charles Chalfant, John Herron, E. J. Cruse, L. E. Drewrey, Mr. Eugene Warren, Mr. Paul Harris,

and Mr. Schaefer.

The Council transacted the following business:

- I. The Council was advised of the decision of the governor to appoint the State Health Department as the certifying agent for institutions wishing to qualify for patient care under the new Medicare law. Upon the motion of Norton and Saltzman, the Executive Vice President was directed to write the governor thanking him for this action.
- II. Mr. Schaefer read a resolution adopted by the American College of Pathologists regarding separate billing by pathologists for patients in hospitals. Upon the motion of Fowler and Applegate, the Council voted to approve the resolution and commend the pathologists on their stand. It was further directed that this resolution be printed in the Journal of the Arkansas Medical Society in the December issue — that issue to be designated as the "Medicare Issue".
- III. Upon the suggestion of Dr. Norton, the headquarters office was directed to obtain tapes of a talk made by Dr. Edward R. Annis at a meeting held in Chicago on October 1st for the purpose of discussing Medicare. Use of the tapes is to be suggested to the county societies.
- IV. It was further directed that the American Medical Association Reference Committee report, which was made to the special meeting of the House of Delegates of the AMA on October 2nd, be made available to all members. It was decided to include the report in the December "Medicare Issue" of the Journal of the Arkansas Medical Society.
- V. President-elect Whittaker presented a statement for consideration as policy of the Arkansas Medical Society on the new Medicare law. After several minor amendments, upon the motion of Fowler and Fairley, the statement was adopted as policy of the Society and it was directed that it also be published in the December issue of the Journal. Upon the motion of Norton and Kemp, Dr. Whittaker was given a rising vote of thanks for his interest and work in writing the policy statement.
- VI. After discussion of the possibility of designating Blue Cross-Blue Shield as the Medical Society's choice for the administering agent under the Medicare program, upon the motion of Saltzman and Fowler, the Council voted to defer a decision on the matter until it has been

learned if the Medical Society is eligible to administer the program. The Executive Vice President is to notify the Executive Committee as soon as a decision is made by HEW and the Executive Committee will call a special meeting of the House of Delegates to decide the question.

- VII. A resolution regarding implementation of Title XIX of the new Medicare law was presented by the Ouachita County Medical Society and after amendment, upon the motion of Norton and Fowler, it was adopted.
- VIII. A request by U. Lee Smith of Nashville for legal action to test the constitutionality of the retroactive collection of social security taxes from doctors under the new Medicare law was presented. Legal counsel stated that the constitution gave no protection against the retroactive application of revenue statutes. This being the case, no further action was taken on Dr. Smith's request.
- IX. Dr. Whittaker advised the Council that Dr. George Burton had stated he wished to resign his membership from the Council. Dr. Whittaker then presented a resolution urging Dr. Burton to reconsider. Upon the motion of Whittaker and Norton, the Council adopted the resolution unanimously.
- X. Dr. Norton requested that a resolution similar to the one adopted by the pathologists be approved by the Council and that copies be sent to all hospital administrators in the State and to the Hospital Association. Upon the motion of Norton and Saltzman, it was so voted.

APPROVED:

H. W. Thomas, M.D.
Chairman

PATHOLOGIST RESOLUTION

WHEREAS, Pathology has been repeatedly defined as an integral part of the practice of medicine, and

WHEREAS, the House of Delegates of the AMA, at a recent meeting in Chicago, adopted the following statement of policy: "hospital-based" medical specialists are engaged in the practice of medicine. The fees for the services of such specialists should not be merged with hospital charges. The charges for the services of such specialists should be established, billed, and collected by the medical specialist in the same manner as

are the fees of other physicians", and

WHEREAS, Public Law 89-97, the Medicare Program, provides for coverage of pathology in such a manner, and

WHEREAS, it is desirable for payment of all pathology fees to be done in a uniform manner, now

THEREFORE, BE IT RESOLVED, that it be the policy of the College of American Pathologists, that members of the College shall separate their professional fees from hospital charges and present their own bills to all patients expected to pay for services, and

BE IT FURTHER RESOLVED, that hospitals shall not be designated as a billing agent for pathologists, and

BE IT FURTHER RESOLVED, that pathologists set their fees according to the worth of their professional service, maintaining a zealous guard against abuses which would significantly increase the cost of medical care.

ADOPTED: Council of the Arkansas Medical Society
October 31, 1965

STATEMENT OF POLICY FOR INFORMATION OF THE
ARKANSAS MEDICAL SOCIETY REGARDING
PUBLIC LAW 89-97
Title I

Part I. Participation.

Public Law 89-97 is a fact. All licensed physicians may participate. However, there are no provisions of this law that require any doctor to participate in the program, and the law as written applies only to people 65 years of age or older—regardless of need. The public law consists of two parts:

"A" is hospitalization, rest home care, extended care provisions—and has no direct bearing on physicians' services;

"B" is an insurance program in which the recipient of government aid pays \$3 per month which is matched by a similar amount by the federal government.

Under ordinary circumstances, the individual physician, acting independently, is ethically free to select his patients:

1. He may continue to give emergency treatment where needed in accordance with accepted medical ethics;

2. He may participate and accept the terms of the Medicare contract;
3. He may decline to render medical services to persons covered by the health-insurance-for-the-aged act;
4. He may choose to treat such persons without charge;
5. He may treat patients with the advance understanding that he will look to them exclusively for payment and that he will or will not in any way help them in obtaining reimbursement for the cost of his services, or the cost of associated services.

If a physician decides not to participate in the Medicare Program or decides to limit his participation, he should advise the patient in advance of treatment. This applies to services rendered by the physician as well as hospital services and other benefits provided under the program. If, after regulations are promulgated and the Medicare Law becomes effective, the individual physician, acting independently, and not in concert with others, finds it does tend to impair the free and complete exercise of his medical judgment and skill or to cause a deterioration of the quality of medical care, the individual physician would be justified under this principle in not participating under the law. The physician is ordinarily free to select his patients subject to such ethical and other limitations as previously stated.

Part II. Payment to Vendors of Service

This may be done by two methods. One method is the assignment method in which the patient assigns his benefits to the physician. This assignment then provides a contract under which the physician will provide his services on a fee-for-service basis, signing his name to a document that he will not charge the patient any more than the service contract allows. The patient must then be responsible for the deductible features that are stated in the law.

The alternative method of payment is for the patient to obtain a receipted bill as having paid in full his obligation to the physician, and then presenting this receipted bill to the proper government agency who will reimburse him at the rate of 80% of the paid bill, less the deductibles that are incorporated in the law. Since the age group selected has not been designated as charity cases, there is every reason why they should be

charged the usual and regular fees for whatever services the physician decides and not at a reduced or charitable fee.

Part III. Utilization Committees.

It is recommended that wherever possible, a utilization committee be appointed for hospitals, extended care facilities, rest homes, and other such institutions, consisting of physicians and in adequate number to provide the proper service to the individual institutions served. It is recommended that these committees be representative of the specialties that would be involved with this age group, as well as a doctor from general practice.

Part of the duties of the utilization committee would be to determine the medical need for hospitalization, the length of stay, and the proper treatment and medication for that patient. Under some circumstances, this committee might judge that the patient had received sufficient care and it may be empowered to recommend the stopping of federal funds for continuing their hospitalization and the patient remain in the hospital at his own expense.

Part IV. Compliance

Title VI of the Civil Rights Law, in the past, has required that physicians sign the compliance to the effect that they will not discriminate against any patient because of race, color, or national origin. The Secretary of the Department of Health, Education and Welfare has informed several states that in lieu of the signing of a compliance statement, the bill for payment will now carry a statement spelling out that no persons in the United States shall, on the grounds of race, color, or national origin, be subject to discrimination, in any program or activity receiving federal assistance. This is a softer language for compliance.

Part V. Carriers

For Part "B" of Public Law 89-97, the law provides that a designated agency from each State shall negotiate with the Department of Health, Education and Welfare for the provision of carrying out the purposes of the intent of the act. It is recommended that the State Medical Society be its own negotiating agent and that if proper arrangements may be made with Blue Cross-Blue Shield, or any other carrier, it would be the disbursing agent and carry on the mechanical activi-

ties in preparing claims and providing the paper work.

Your Medical Society is well aware that planning for the future of medicine should be an integral part of planning for the future of our State Medical Society and communications with the individual members as well as county medical societies should be done in a manner that keeps every member well aware of all activities, government and otherwise, that are going forward.

All physicians are urged to support and assist AMPAC, and local political action committees in their efforts to elect candidates to office who will help preserve the physicians' right to the free and independent practice of medicine. Because we believe that a government strong enough to give you everything you want is powerful enough to take away everything you have.

ADOPTED: Council of the Arkansas Medical Society

October 31, 1965

RESOLUTION

Of the Ouachita County Medical Society
SUBJECT: To establish a schedule of fees in Arkansas for the present Kerr Mills Program and for the forthcoming Medicare Program, as it applies to Title XIX.

WHEREAS, HR-6675 has now been passed into Public Law 89-97;

WHEREAS, the AMA House of Delegates annual session in New York, 1965, resolved that the Regular Fees for medical services rendered be paid for in the forthcoming Medicare Program;

THEREFORE, BE IT RESOLVED that a fee schedule based on the California Relative Value Scale be established for medical services including office calls, hospital care, surgery, house calls, and for medical care in Nursing Homes.

ADOPTED: Council of the Arkansas Medical Society

October 31, 1965

RESOLUTION

RE: Dr. George Burton

WHEREAS, Dr. George Burton of El Dorado, Arkansas, is a member in good standing of the Arkansas Medical Society, and a member of the Council of the Arkansas Medical Society, and

WHEREAS, Dr. Burton has offered to resign his membership on the Council of the Arkansas Medical Society, and

WHEREAS, Dr. Burton has an excellent rec-

ord of attendance at Council meetings as well as other meetings of the Arkansas Medical Society, and

WHEREAS, Dr. Burton has been an indefatigable worker for the Arkansas Political Action Committee, as well as committees of the Arkansas Medical Society, and

WHEREAS, Dr. Burton's opinion and influence are considered quite valuable to this Council.

THEREFORE, BE IT RESOLVED that the Council refuse to accept Dr. Burton's resignation and

BE IT FURTHER RESOLVED that the Council urge Dr. Burton to continue his seat on the Council and to extend to him a vote of confidence for his service and steadfast convictions. ADOPTED: Council of the Arkansas Medical

Society

October 31, 1965

RADIOLOGIST RESOLUTION

Dr. Joseph A. Norton presented the following resolution, having to do with the practice of Radiology under the New Medicare Law:

"WHEREAS, Radiology has been repeatedly defined as an integral part of the practice of Medicine, and

"WHEREAS, the House of Delegates of the AMA, at a recent meeting in Chicago, adopted the following statement of policy:

"Hospital based Medical Specialists are engaged in the practice of medicine. The fees for the services of such specialists should not be merged with hospital charges. The charges for the services of such specialists should be established, billed, and collected by the medical specialist in the same manner as are the fees of other physicians", and

"WHEREAS, Public Law 89-97, the Medicare Program, provides for coverage of Radiology in such a manner, and

"WHEREAS, it is desirable for payment of all Radiology fees to be done in a uniform manner, now

"THEREFORE, BE IT RESOLVED, that it be the policy of the American College of Radiology, that members of the College shall separate their professional fees from hospital charges and present their own bills to all patients expected to pay for services, and

"BE IT FURTHER RESOLVED, that hospitals shall not be designated as a billing agent for Radiologists, and

"BE IT FURTHER RESOLVED, that Radi-

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: App. 120 RHYTHM: Coarse fibrillation (flutter-fibrillation)

PR. — sec. QRS: .07 sec. QT: .30 sec., variable

ABNORMAL: P waves replaced by F waves, at times regular in occurrence and form, at times irregular.

COMMENT: The ischemic pain was related to the rapid ventricular response. Arrhythmia of this sort frequently produces pain in patients with ischemic heart disease and infarction may be produced; rapid termination of the arrhythmia is therefore indicated.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Carcinoid tumor of the stomach. Large peptic ulcer, duodenal bulb.

X-RAY FINDINGS: A smoothly rounded filling defect lies within the prepyloric region of the stomach superiorly and compresses the base of the duodenal bulb. The collection of barium within the duodenal bulb represents the ulcer crater.

ologists set their fees according to the worth of their professional service, maintaining a zealous guard against abuses which would significantly increase the cost of medical care."

The resolution was presented to the Council of the Arkansas Medical Society by Dr. Joseph A. Norton. The Council voted to recommend the Radiologists on their stand and to approve the policy expressed in the resolution, and to have the resolution printed in the Journal of the Arkansas Medical Society.

RESOLUTIONS



WHEREAS, the passing from this life of Dr. Harlan H. Hill, an honored and valued member of the medical community and of the Pulaski County Medical Society, is noted with sincere reverence and sorrow, and

WHEREAS, Dr. Hill served with devotion and skill his patients in his chosen specialty, and

WHEREAS, Dr. Hill had attained the highest degree of respect among his colleagues for his devotion to the practice of medicine;

BE IT THEREFORE RESOLVED:

THAT, the Members of the Pulaski County Medical Society express to his family the heartfelt sympathy of our organization, and

THAT, a copy of this resolution be made a matter of permanent record in the minutes of this Society, and

THAT, a copy of this resolution be sent to his family, and

THAT, a copy of this resolution be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
Gordon Holt, M.D.
Forrest Henry, M.D.

Read to and approved by the
Pulaski County Medical Society
November 2, 1965.

WHEREAS, God in His Infinite Mercy has seen fit to call from our midst, Dr. Clarence L. Glenn, and,

WHEREAS, Dr. Glenn had faithfully served his patients in the community at large throughout his many years of medical practice, and,

WHEREAS, Dr. Glenn during his years of practice has reflected throughout his entire medical career the highest ideal of his profession, and,

WHEREAS, the Sebastian County Medical Society mourns his loss,

THEREFORE, BE IT RESOLVED by the Sebastian County Medical Society, in regular meeting assembled on November 9, 1965 hereby adopts these resolutions and directs that a copy be spread on the minutes of the Society and that a copy be furnished to the family and that a copy be published in the Journal of the Arkansas Medical Society.

THINGS



TO

COME

Osler Medal Essay Contest

The William Osler Medal of the American Association for the History of Medicine is awarded for the best unpublished essay on a medico-historical subject written by a student in one of the medical schools in the United States or Canada. All students who are candidates for the degree of Doctor of Medicine, or who graduated in 1965, are eligible. This medal, first awarded in 1942, commemorates the physician, Sir William Osler, who stimulated an interest in the humanities among students and physicians alike. Essays should demonstrate either original research or an unusual appreciation and understanding of a medico-historical problem. Maximum length is 10,000 words. The prize-winning essay will be submitted to the Editorial Committee of the Association, which may recommend it for publication in the "Bulletin of the History of Medicine." Essays must be submitted by March 23, 1966, to the Chairman of the Osler Medal Committee, William K. Beatty, Librarian and Professor of Medical Bibliography, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois, 60611.



PERSONAL AND NEWS ITEMS

New Doctor for Caraway

Dr. Thomas Flannigan, physician and surgeon, opened offices for the general practice of medicine in Caraway in November.

Dr. Hyatt Speaks at Meeting

Dr. C. Lewis Hyatt of Monticello, president of the Arkansas Medical Society, spoke at the meeting of the McGehee Rotary Club in October. He spoke on medicare and the political, economic and social changes in the country and their effect on the practice of medicine.

Dr. Clements Guest of PTA

Dr. Sam Clements of Little Rock spoke at the meeting of the Atkins PTA in November. He spoke about children with average or above average intelligence who have learning disabilities.

Medical Examiners Appointed

Dr. James K. Cornett of Little Rock and Dr. James E. Murphy of North Little Rock have been appointed as medical examiners for the state Employees Retirement System.

Dr. Kemp Home From Bolivia

Dr. Charles E. Kemp, a Jonesboro pediatrician, has recently returned from an Alliance for Progress mission to Bolivia. The project was called the "Arkansas Committee of Partners for the Alliance".

Open House Held

Drs. M. H. Harris, J. C. Wright, J. F. Jackson and W. R. Harris held open house at the Harris Hospital and Clinic, Ltd., in November. The clinic is located at 1205 McLain Street in Newport, Arkansas.

Dr. Kolb Member of Advisory Group

Dr. James M. Kolb, Sr., of Clarksville, representing the American Medical Association, was one of 31 members of an advisory group which met in October at social security headquarters in

Baltimore, Maryland, to discuss principles for reimbursing hospitals under the new program to provide medical care for people over 65.

New Office for Dr. Wilson

Dr. T. C. Wilson of Dermott is now practicing in his recently-completed office building. It is located on Peddicord Street.

Physicians Receive F.A.C.S. Degree

Six Arkansas surgeons were among 1,175 doctors inducted as fellows of the American College of Surgeons in October at Atlantic City, New Jersey. They are: Dr. Charles S. Lane, Jr., Dr. Stanley R. McEwen, Dr. P. Gordon ReMine and Dr. Everett C. Moulton, Jr., all of Fort Smith; Dr. Stuart B. McConkie of Hot Springs and Dr. J. Harry Hayes, Jr., of Little Rock.

Dr. Jerome Levy Featured in PR Doctor Article

Dr. Jerome S. Levy of Little Rock, Arkansas, was honored by an article about his achievements in the October, 1965, edition of *PR Doctor*.



O B I T U A R Y

Dr. James Randolph Fall

Dr. James R. Fall of West Memphis died October 14th, 1965, in his office at Crittenden Memorial Hospital. He was 61 years of age. He was born in Memphis, where he completed high school. He completed his pre-medical studies at the University of Mississippi, Oxford, and received his medical degree from the University of Tennessee School of Medicine, Memphis. He practiced medicine one year in Wilson, Arkansas, prior to opening his offices in West Memphis. He was a member of the Crittenden County

Medical Society, the Arkansas Medical Society, and a past chief-of-staff of Crittenden Memorial Hospital. He was a member of the Legion of Honor of the DeMolay of Memphis, and a member of Holy Cross Episcopal Church. He is survived by his widow and a son.

Dr. Henry Alvie Murphy

Dr. H. A. Murphy, age 82, of El Dorado died on October 13th, 1965. He was born near El Dorado on July 23, 1883, and he was graduated from Kentucky School of Medicine in Louisville

in 1907. He practiced medicine for 58 years until his final illness. He began his practice in Wesson and continued it in Garyville, Louisiana. In 1929 he returned to El Dorado. For a number of years he owned and operated St. Anne Maternity Hospital in El Dorado. Dr. Murphy served as a lieutenant with the Army Medical Corps in World War I. He was a 32nd degree Mason and a Shriner; a member of Union County Medical Society, Arkansas Medical Society and the American Medical Association. He is survived by his widow and a daughter and a son.



PROCEEDINGS OF SOCIETIES

Miller

Dr. David Wade, president of the Texas Medical Association, was guest speaker at a meeting of the Bowie-Miller Medical Society in November. A special guest at the meeting was Dr. C. Lewis Hyatt, president of the Arkansas Medical Society. Dr. Wade and Dr. Hyatt were classmates at the University of Arkansas School of Medicine. The president of the Miller County Medical Society, Dr. Betty Lowe, and the President of the Bowie County Medical Society (Texas), Dr. Wil-

liam B. Harrell, were also present. Dr. Harrell is a member of both state associations.

Boone

The Boone County Medical Society honored the late Dr. Leonidas Kirby, a pioneer Boone County physician, at a memorial service at Harrison in October. Dr. William A. Hudson, President of the society, presided at the service. Dr. Henry V. Kirby, a grandson of Dr. Leonidas Kirby, participated in the service.



BOOK REVIEWS

DISEASES OF THE NEWBORN, Second Edition, by Alexander J. Schaffer, M.D., Associate Professor of Pediatrics, The Johns Hopkins Medical School; with a section on neonatal cardiology by Milton Markowitz, M.D., Assistant Professor of Pediatrics, The Johns Hopkins Medical School; and a section on fluid and electrolyte therapy by Lawrence Finberg, M.D., Director of Pediatrics, Montefiore Hospital, New York, New York, illustrated, pp. 1023, published by the W. B. Saunders Company, Philadelphia and London, 1965.

This interesting text subdivides pediatrics into a newborn and an older group. As the title implies, the text devotes itself entirely to the newborn. The book starts out with a discussion of the normal newborn; this is followed by a brief chapter on the causes of abnormalities in the newborn. The book is then generally oriented toward discussing newborn diseases according to systems, such as cardiovascular, gastro-intestinal, etc. The book is written in considerable detail. Some chapters are introduced by a general discussion to give an idea of the scope of the topic. There are some appendices which discuss, for example, principles of full term and premature infant care in nursing, resuscitation in the delivery room, drugs used for the newborn, etc. The book is recommended to medical students, to house staff, and pediatricians as being a fine text for diseases of the newborn. AK

COMPLEMENT, Edited by G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I. Biol. and Julie Knight, B.A., illustrated, pp. 378, published by Little, Brown and Company, Boston, Massachusetts, 1965.

This is a highly technical book which should be of interest to bacteriologists. It is of limited interest to the practicing physician. AK

CARIES-RESISTANT TEETH, Edited by G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I. Biol. and Maeve O'Connor, B.A., illustrated, pp. 327, published by Little, Brown and Company, Boston, Massachusetts, 1965.

The problem of caries is a widespread one in America. A great deal of research is being done on why some teeth are more resistant to caries than others. This short text summarizes a symposium by the CIBA company on dental caries. It is of interest to the dental profession, and in a very limited way is of interest to the medical profession. AK

PEDIATRIC ELECTROCARDIOGRAPHY by Warren G. Guntheroth, M.D., Associate Professor of Pediatrics, University of Washington School of Medicine, Seattle, illustrated, pp. 150, published by W. B. Saunders Company, Philadelphia and London, 1965.

This book is generally designed for the pediatrician and for the pediatric resident. There is probably no material in here that is not already included in the better textbooks of electrocardiography. This book's main advantage is that in a very brief form it compiles pertinent information applicable to the very young age group. The book is easy to read. There are numerous electrocardiographic tracings. There is a good bibliography. This book is recommended to pediatricians and to pediatric residents. AK

NEUROLOGICAL SURGERY OF TRAUMA, prepared and published under the direction of Lieutenant General Leonard D. Heaton, The Surgeon General, United States Army, Editor in Chief, Colonel John Boyd Coates, Jr., MC., USA, Editor, Arnold M. Metrowsky, M.D., Washington, D.C., pp. 604, illustrated, 1965.

This book on Neurological Surgery of Trauma follows the same high standards of the books previously published under the auspices of the Surgeon General's Office. The book is very complete. It is very well written. The illustrations are excellent. Of interest to the civilian surgeon and physician is the discussion of trauma of the intervertebral disk. There is a chapter on physiological and vocational rehabilitation. Unfortunately, it is rather short and it might be well expanded somewhat. This is a very interesting book and is highly recommended as a worthwhile text for the neurosurgeon, the traumatic surgeon, and the military surgeon. AK



Hypонатremia and Increased Exchangeable Sodium in Chronic Obstructive Lung Disease
F. K. Bauer et al (Harbor General Hosp, Torrance, Calif) *Amer J Med Sci* 250:245 (Sept) 1965

Hypонатremia was found in 14 of 30 patients with chronic obstructive pulmonary disease without congestive heart failure. Increased exchangeable sodium, measured with ²²Na, was found in 19 of the 30 patients with either compensated or uncompensated respiratory acidosis, as well as in

some with normal blood gases. Neither the hypонатremia nor the increased exchangeable sodium appeared to be related to hypoxia. Most of the patients had normal serum and red cell potassium but elevated red cell sodium. The hypонатremia most likely reflects potassium depletion which has not been fully compensated by a rise in exchangeable sodium or a fall in total body water. In some of the patients the increase in exchangeable sodium is far in excess of that needed to compensate for potassium depletion.



Sponsored by Arkansas Tuberculosis Association

DEATH FROM ASTHMA IN CHILDREN

An increase in asthma deaths at Childrens Hospital of Los Angeles led to a study of factors that might be involved. These were found to include infection, aminophylline intoxication, sedation, pancreatitis, and possible cardiac failure. Care in the use of drugs is urged.

A review of deaths from asthma at the Childrens Hospital of Los Angeles between 1937 and 1963 has shown that 20 of the 24 asthmatic deaths had occurred since 1952. During the same period, the overall hospital death rate declined.

At death, the patients ranged from 5 months to 14 years of age. Two children died in infancy; two died during initial asthmatic episodes, but had pathologic evidence of pre-existing disease. Six deaths were sudden and unexpected; the others were more insidious.

Factors contributing to death included infection, pancreatitis, aminophylline intoxication, possible cardiac failure, sedation, hypoadrenalism, and pulmonary hemorrhage.

The most frequently associated pathological finding was pneumonitis, which was present in 12 patients. Eleven had pathologic evidence of bronchopneumonia, and one had viral pneumonitis characterized by monocytic infiltration of bronchi and peribronchial tissues; one had bronchopneumonia and viral pneumonitis. There was no pathologic evidence of infection in the lungs of the other 12 patients.

Acute pancreatitis was found at autopsy in two patients, 10 and 12 years old, who had long histories of asthma.

Other factors which might have been of significance in the deaths were inadequate hydration and heavy sedation. In one case, aminophylline intoxication was a major contributing factor.

Pathological examination of the lungs of five children with severe and chronic asthma revealed

surprisingly minimal changes and no evidence of destructive emphysema.

Of the six sudden unexpected deaths, all but one of the patients had been on steroid therapy. In two cases, asthmatic death appeared pathologically uncomplicated.

Statistical information pertaining to death from asthma was incomplete until relatively recently, but review of the medical literature reveals that asthma deaths among all age groups were almost unknown prior to 1930.

MORTALITY TRENDS

To determine the significance of mortality trends in the present study, comparative asthma mortality data were examined for the nation as a whole; the State of California; the County of Los Angeles, excluding the cities of Los Angeles, Long Beach, and Pasadena; and the City of Los Angeles, and the Los Angeles County General Hospital.

It was found that for all age groups, asthma mortality rates in the City of Los Angeles have tended to be higher than the national rates since 1949, but not for the County of Los Angeles or for the state.

In 1956 and 1957, there was a marked rise in asthma mortality in children under 14 years of age in the City of Los Angeles and the State of California. More asthmatic deaths (five) occurred at the Childrens Hospital in 1957 than in any other year covered by this study. An Asian flu epidemic in 1957 may account for some of the increase.

Little correlation was found between air pollution and the peak years of asthma deaths at the Childrens Hospital, but the greatest number of asthma deaths in all age groups in the city occurred in 1956, the year of the most smog warnings, heaviest eye irritation, and most days of diminished visibility due to smog.

MODES OF DEATH

Two modes of death during an asthmatic at-

WARREN RICHARDS, M.D., and JAMES R. PATRICK, M.D. *American Journal of Diseases of Children*, July, 1965.

tack have been described — one sudden and unexpected, the other characterized by progressive dyspnea, cyanosis, coma, and severe respiratory acidosis. Eighteen of the deaths were of the latter type and were associated with pneumonitis, aminophylline intoxication, over-sedation, pancreatitis, and hypoadrenalism.

The high incidence of infection in this study does not, however, justify the routine use of antibiotics in all children with asthma or status asthmaticus; the absence of infection in those dying from causes other than pneumonitis makes their routine use unwarranted. Indications for the use of antibiotics are evidence of infection elsewhere, positive chest X-ray findings (any child ill enough to be hospitalized for asthma should have a chest X-ray) and, somewhat less specifically, fever and leukocytosis. However, low-grade fever is not infrequent in allergic persons without infection.

It is unfortunate that aminophylline intoxication continues to occur despite repeated warnings in the literature. These may be due to failure of the physician to recognize and adequately emphasize the hazards of the drug, and failure of the parent to heed warnings.

A physician attending any case of asthma, especially a child under three years of age, should be familiar with the toxic symptoms, side effects, and accepted dose range of aminophylline; he should impress those administering the drug with the importance of following directions implicitly; inquire into the medication previously given the

patient; consider the possibility of aminophylline intoxication in the differential diagnosis of asthma; check and re-check written orders for aminophylline for hospitalized patients. The drug industry, too, might assume greater responsibility in warning physicians of the hazards of this medication.

Steroid therapy may have played a role in some of the deaths in this study, reemphasizing the importance of exercising great discretion in the use of these drugs.

HEART INVOLVEMENT

The role of the heart in asthma deaths is controversial. Cardiac hypertrophy was present in only two patients in this series, both of whom had sudden unexpected deaths without evidence of other complications.

Five children with long-standing asthma showed no pathologic evidence of destructive lung damage. Although the classic findings of emphysema are not present in asthma, evidence is now emerging that elastic tissue damage may result from severe chronic asthma.

There is no question that some asthmatic children develop chronic debilitating lung disease. Many more, however, probably have benign, reversible changes.

At least some of the deaths in this series could be linked to medication previously administered (sedation, aminophylline, and steroids). A more informed use of these medications and the newer means of resuscitation will, it is hoped, reduce the incidence of deaths from asthma in children.



Cardiac Resuscitation: A One-Year Study of Survival of Patients Resuscitated Within a University Hospital

E. J. Stemmler (Hosp of the University of Pennsylvania, 3400 Spruce St, Philadelphia) *Ann Intern Med* 63:613-618 (Oct) 1965

Excluding patients whose cardiac arrest occurred in the operating room or cardiac catheterization laboratory, 103 patients received external cardiac massage in the hospital from July 1, 1963, to June 30, 1964. Since the chief attribute of external cardiac massage is its potential success under disadvantageous circumstances, this study is

concerned with the factors which diminish the chances of success. Thirty-six patients were successfully resuscitated for longer than one hour, 13 of these survived 24 hours, and 5 were discharged from the hospital alive. The chance of surviving a cardiac arrest is distinctly less for a patient with serious underlying illness than for patients with unexpected cardiac arrest who were well and in no apparent jeopardy from a mortal illness. The immediate application of external cardiac massage and effective ventilation had the most important influence on survival rate. Survival may be improved by closer observation.

Nursing personnel should probably be taught the techniques of external cardiac massage, but the decision to initiate therapy should be made by a physician, and he should supervise the procedure if possible.

Adrenal Hemorrhage During Anticoagulant Therapy: A Clinical and Pathological Study of Ten Cases

E. Amador (Peter Bent Brigham Hosp, 721 Huntington Ave, Boston) *Ann Intern Med* 63:559-571 (Oct) 1965

The records of 4,325 autopsies performed on adults since the adoption of anticoagulant therapy in 1949 were searched for cases of adrenal hemorrhage. In nine cases (plus one personal case) adrenal hemorrhage occurred during anticoagulant therapy for thromboembolism or myocardial infarction. Five patients received heparin, and five heparin plus bishydroxycoumarin (Dicumarol). Adrenal hemorrhage occurred after two to ten days of therapy. Localizing manifestations were steady pain of sudden onset, located to the upper abdomen or flanks, accompanied by tenderness and guarding. Anorexia, nausea, and vomiting also occurred. Manifestations of adrenal crisis were listlessness and weakness, progressing to lethargy. Tachycardia, hypotension, fever, and cyanosis were late signs. Death occurred in two to eight days. A direct eosinophil count above 50 cells/cu mm may be the most helpful laboratory test for detecting an adrenal crisis. None of the present cases was diagnosed clinically. However, the diagnosis was made in three cases reported previously, and in all three prompt and intensive corticosteroid therapy was life-saving.

Breathing Mechanics in Asthma

N. B. Leroy and J. L. Guerrant (University of Virginia Hosp, Charlottesville) *Ann Intern Med* 63:572-582 (Oct) 1965

The mechanics of breathing were studied in 40 asthmatics in their symptomatic or asymptomatic periods. Many patients had a reduced forced expiratory volume and 35 of 40 patients had a reduced maximum voluntary ventilation. The dynamic compliance was reduced in a few of the asymptomatic patients and in 15 of 23 symptomatic patients. The mechanical resistance was increased in both inspiration and expiration in most of the symptomatic patients and in a signifi-

cant number of asymptomatic patients. The compliances and mechanical resistances usually returned to normal after the patients received nebulized isoproterenol. There were no characteristic differences in the mechanics of breathing among patients with asthma due to different causes. The age of the patient and the duration of asthma made no difference in the mechanics of breathing. A number of patients in whom no wheezing was heard were found to have increased mechanical resistance. Only a few of the asthma patients studied had the air-trapping or check-valve mechanism during expiration which is so characteristic of emphysema. Our observation, that various causes of asthma produce the same physiological disturbance, correlates well with the concept that asthma is a disease characterized by an increased responsiveness of the trachea and bronchi to various stimuli.

Blood-Sugar and Arterial Disease

H. Keen et al (G. Rose, London School of Hygiene, Keppel St, London) *Lancet* 2:505-508 (Sept 11) 1965

This study was designed to answer the question whether an increased tendency to arterial disease was associated with hyperglycemia both at "diabetic" levels and also in people with only "borderline" elevations of the blood sugar. The study forms part of a continuing follow-up of participants in the Bedford diabetes survey. As a sequel to this survey, a cardiovascular examination was done on three samples from the general population. The samples were defined by the levels of blood sugar two hours after 50 gm of glucose by mouth; persons with levels of 200 mg/100 ml or over formed a "diabetic" group, those with levels of 120 to 122 mg/100 ml formed a "borderline" group, and a matched random sample of those under 120 mg/100 ml formed a "control" group. The age-adjusted prevalence of both symptoms and electrocardiographic changes of arterial disease was lowest in the control group, intermediate in the borderline group, and highest in the diabetics. It appears that symptomless impairment of glucose tolerance may be one of the important accompaniments of atherosclerotic disease in the general population, although confirmation of its causal role must await further evidence.

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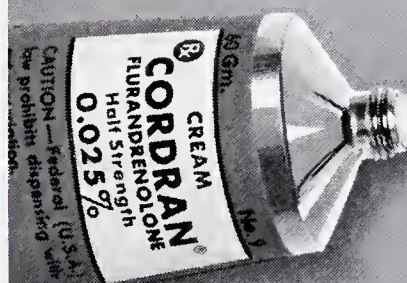
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MEDICAL TREATMENT OF HYPERTENSION

Philip J. Osmundson, M.D.*

Despite the great advances in the diagnosis and treatment of secondary hypertension in recent years, the major problem facing the practicing physician who takes care of hypertensive patients continues to be primary hypertension and its management. The systematic search for secondary hypertension has had as its reward increasing numbers of patients cured of their hypertension. Renovascular hypertension is now the most frequently encountered type of secondary hypertension for which appropriate surgical treatment may effect a cure. Yet the incidence of hypertension due to renal artery stenosis is probably 5 to 10% of the hypertensive population, and not all patients with renovascular hypertension can or should be treated surgically. Medical anti-hypertensive treatment is as effective for patients with renovascular hypertension as it is for patients with primary hypertension, and in some it is the treatment of choice. Techniques for the diagnosis of pheochromocytoma and various adrenal diseases that produce hypertension, notably primary aldosteronism, have continued to improve. Coarctation of the aorta must be considered, particularly in evaluation of the younger hypertensive patient. The remarkable advances in drug therapy of hypertension in the past 15 years do not excuse the physician from seeking these potentially curable diseases that cause hypertension. To cure even the occasional patient of hypertension is indeed a significant achievement, and the relative infrequency of curable secondary hypertension should not deter the physician from this task.

Prognosis in Hypertension

Many clinical studies have shown that the average life expectancy of hypertensive individuals is less than that of the corresponding general

population. The statistics compiled by the life insurance companies to document this are also relevant.¹ It has been demonstrated repeatedly that there is a correlation between blood pressure and shortened survival; the patients with sustained high blood pressure of marked degree have the worst prognosis. In addition to prognostication from blood pressure readings alone, the prognosis of hypertensive patients may be estimated by other criteria. Keith, Wagener, and Barker² in 1939 showed that life expectancy in the hypertensive patient was related in part to severity of the funduscopic manifestations of hypertensive disease. Prognosis also has been related to other criteria for determining the severity or complications from hypertension, namely the state of renal and cardiac function and coexisting atheromatous disease.³

Results From Antihypertensive Treatment

Accumulated evidence from many sources indicates that medical treatment of the hypertensive patient has improved his prognosis. For example, the death rate from hypertension has declined 38% in the past 10 years among Metropolitan Life insurees.⁴ Since a development of major importance and wide applications to the hypertensive patient in this decade has been the drug treatment of hypertension, it seems safe to assume a relationship between these two phenomena.

There is no longer any question that the group of severely hypertensive patients benefit greatly from treatment. Farmer and associates⁵ reporting on the Mayo Clinic experience found, for example, that the 1-year survival for patients with group 4 hypertension (Keith, Wagener, and Barker classification) improved from 21 to 65% with drug treatment, and the 1-year survival of patients with group 3 hypertension improved from 62.5 to 79.5%. Hypertensive patients with certain complications also improve markedly with

*Mayo Clinic and Mayo Foundation, Rochester, Minnesota. Presented at the meeting of the Arkansas Medical Society, Little Rock, April 26, 1965.

medical antihypertensive therapy, namely those with acute ventricular failure and those with hypertensive encephalopathy. Furthermore, patients with mild-to-moderate renal complications due to hypertension have improved with prolonged effective blood pressure control.⁶

The question that can be answered only in part at the present time is whether antihypertensive treatment improves the prognosis of patients who have only mild uncomplicated hypertension. Many studies have been undertaken to offer some information bearing on this, and with few exceptions they indicate that the group with mild hypertension will indeed benefit from treatment and have a better prognosis.⁷ Since hypertension in its milder form is a condition in which the life expectancy without treatment may be 20 or more years, final judgment of the effects of treatment on this group probably should be withheld until more time has elapsed. The era of drug therapy has not as yet been of sufficient duration to assess all of the advantages and disadvantages of treatment.

Selection of Patients for Treatment

When drug therapy is instituted in hypertensive patients, inherent disadvantages exist as in any drug treatment program: the toxicity of the drugs, the nuisance involved in treatment that hopefully will span many years, and the cost of such treatment must be given consideration. These disadvantages can be weighed against the hazards of hypertensive disease, and in each hypertensive patient a rational decision must be made as to whether treatment is justified. In some patients, for example, those with hypertensive encephalopathy, cardiac decompensation, or group 3 or 4 hypertension, the hazards of the disease far outweigh the disadvantages of drug treatment. Immediate treatment is indicated in such situations.

Currently, the more difficult question to answer in everyday practice is whether or not a patient with mild hypertension (Keith, Wagener, and Barker, groups 1 and 2) should receive drug therapy. To answer this question for an individual patient, a thorough evaluation to assess the presence or absence of complications stemming from hypertension is indicated. Inasmuch as a poor prognosis has been demonstrated for patients having left ventricular hypertrophy, cardiac enlargement, impaired renal function, more ad-

vanced retinal arteriolar abnormalities, or any combination of these conditions, these findings, if present, should weigh heavily as indications for drug treatment. The prognosis of the hypertensive patient also relates to blood pressure level, and the average of blood pressure readings must be an important consideration in the decision regarding treatment. The sex and age of the patient also must be considered. Men tolerate hypertension less well than do women and, accordingly, should be treated early in the course of their hypertension. A more vigorous approach in therapy is warranted for younger hypertensive patients, hopefully to delay or prevent the complications for the many years of their projected lives with controlled hypertension. Drug treatment probably should be initiated in a young man with the average diastolic blood pressure of 95 mm of mercury and conversely to observe without treatment the elderly woman with uncomplicated hypertension and diastolic blood pressure averaging as much as 110 mm of mercury.

Potential dangers from therapy must be recognized, particularly in certain situations. Drug treatment of hypertension using potent agents that may possibly produce severe postural hypotension is contraindicated, for example, in patients with recent myocardial infarction or those who have intermittent cerebrovascular insufficiency. Similarly, severe azotemia contraindicates treatment with agents that tend to reduce further the renal function.

Antihypertensive Drugs

A truly amazing number of different pills are currently available for treatment of the hypertensive patient—more than 100 counting the various combination pills. The choice of agents need not be as complicated as the large number of pills would imply, if the available drugs are considered by groups. The use of pills containing two or more medicines is to be discouraged in my opinion. By introducing agents one at a time (provided that more than one drug is necessary) the physician can better assess the beneficial effects of each agent individually as well as determine the possible drug relationship of any toxic manifestations should they appear. Later in the course of treatment when a satisfactory drug program has been well established and stabilized, some minor advantages may be gained by the prescribing of two agents contained in the same pill pro-

vided such a plan would entail no basic change in therapy.

Presently, seven groups of drugs may be regarded as of primary importance in antihypertensive treatment. Some of the major advantages and disadvantages of each group will be presented. A complete list of the potential toxic effects will not be given in detail as the product information with the drugs now adequately provides these data.

Despite the great advances made in the development of clinical use of antihypertensive drugs in the past 15 years, the ideal drug still remains a hope for the future. Medications presently available, however, do allow satisfactory medical management of most patients with hypertension.

Thiazide Agents.—Included in this group of drugs are chlorothiazide and its analogues. Additionally, chlorthalidone and quinethazone may be classified loosely with the thiazide drugs because their modes of action are similar to those of the thiazides. The precise mechanism by which thiazide agents exert the hypotensive effect remains incompletely understood. Early in the course of administration, there is a reduction in plasma volume and extracellular fluid volume that parallels the hypotensive effect. These changes tend to normalize after several weeks of treatment, but the hypotensive action persists. Alterations in sodium metabolism may account for the persisting hypotensive effect. Thiazide drugs act at the renal tubular level to inhibit sodium, chloride, and potassium reabsorption and are moderately potent diuretics. Their administration results in reduction in cardiac output, total peripheral resistance, glomerular filtration rate, and arterial pressure.

The introduction of chlorothiazide into clinical medicine signaled a major advance in antihypertensive therapy. Although the lowering effect of the thiazide agent on blood pressure is modest, a trial of a drug from this group can be advocated in each hypertensive patient when treatment is not urgent and specific contraindications do not exist. In many patients with mild hypertension, the average diastolic blood pressure may be maintained at 90 mm or less of mercury with a thiazide drug alone.

The thiazide agents as a group have resulted in relatively few serious complications. The alteration in carbohydrate metabolism as indicated by a reduction in tolerance to glucose has rarely been

of clinical significance in either the diabetic or the nondiabetic patient. Elevation of the value of uric acid in the serum may be of importance in a patient with gout, and at times gout will contraindicate the use of thiazide drugs. In any such patient additional attention to the management of gout must be given if thiazide therapy is used.

A transient rise in blood urea concentration occurs in about 20% of patients treated with thiazides. Caution is due when an azotemic patient is treated. Other drugs that do not reduce renal function should be selected for the treatment of the severely azotemic hypertensive patient.

Hypokalemia develops in one third or more of patients treated with thiazide drugs. This is infrequently of such a degree as to be clinically significant. Periodic determinations of serum potassium should be routine on patients receiving thiazides.

The recent reports of ulceration of the small bowel in patients who have taken pills containing thiazide agents, and usually potassium chloride, cause concern.⁸ The magnitude of this problem and the part that the thiazide drug has, as opposed to the potassium chloride, are not yet fully known. At the present time thiazide drugs probably should be prescribed in pills that do not contain potassium chloride in order to observe the effect on the serum potassium and to add supplemental potassium when specifically indicated. That this complication was noted some 7 years after the introduction of thiazide drugs serves to promote caution in the assessment of the effect of drugs only in short-term observation.

Toxic reactions to thiazide drugs are infrequent. Gastrointestinal intolerance, purpuric rashes, and thrombocytopenia have been encountered rarely. A trial of a different drug in this group is warranted at times when intolerance develops to a specific drug and when further thiazide therapy is indicated.

Thiazide drugs have found an important place in the treatment of patients with moderate or severe hypertension as well as of those with mild hypertension. Although the blood pressure will rarely be controlled well by the thiazide drug alone in severely hypertensive patients, these agents potentiate the lowering effect of other drugs on blood pressure, allowing a lower dosage

and consequently fewer side effects.

After a period of treatment spanning a few months, the dose of the thiazide drug probably can be reduced without a consequent loss of blood pressure control. This plan is to be recommended, particularly if difficulties of any of the types described have occurred with treatment. In summary, the thiazide group of drugs occupy a place of major importance in the therapy of the hypertensive patient at the present time.

Guanethidine (Ismelin).—Guanethidine presently occupies a very important place among antihypertensive drugs. This potent agent for lowering blood pressure acts by postganglionic sympathetic blockade as well as by an effect on the storage and release of catecholamines from peripheral sites. Guanethidine is free of the parasympathetic blocking activity of the ganglionic blocking drugs and has largely replaced ganglionic blockers in clinical use. Reduction of blood pressure is accompanied by reduction in the cardiac output and a small reduction in the total peripheral vascular resistance. Reductions of the renal plasma flow, glomerular filtration rate, and splanchnic flow also occur.

The major advantage of guanethidine lies in its potency. Rare indeed is the hypertensive patient who does not achieve significant reduction of blood pressure when this drug is used vigorously. The major side effects are postural hypotension, muscular weakness, and diarrhea. A tendency to a diurnal variation in blood pressure is present in some patients, and at times a patient receiving guanethidine is hypotensive in the morning and markedly hypertensive in the evening. About 80% of hypertensive patients can tolerate guanethidine in fully therapeutic amounts.

Guanethidine is used most often as adjunctive therapy in a patient receiving thiazide who needs additional treatment to lower the blood pressure. Treatment may be begun with 10 to 25 mg per day. This drug has a slow onset of action and a prolonged effect. Ordinarily, it needs to be given only once a day. Increases in doses should be made, preferably at intervals of several days to a week. The patient's blood pressure should be taken in the standing position as well as in the sitting or supine position and at different times during the day.

Methyldopa (Aldomet).—Although this agent inhibits the decarboxylation of dopa to dopamine,

the antihypertensive action probably relates to an effect on the storage and release of catecholamines. Unlike guanethidine, methyldopa has no appreciable effect on the sympathetic nervous system. Administration of methyldopa results in moderate reduction of the total peripheral resistance, a very desirable characteristic. A mild reduction in cardiac output also occurs. A particular advantage of methyldopa is the characteristic not reducing renal function. Glomerular filtration rate and renal flow are changed little by the administration of methyldopa. This agent is tolerated well by the majority of patients, and the lowering action on blood pressure usually is smooth.

Postural hypotension accompanies the use of methyldopa but is not as pronounced as it is with guanethidine or ganglionic blocking drugs. Methyldopa is not as potent a hypertensive drug as guanethidine and often in full therapeutic dosage will not produce entirely satisfactory control of blood pressure in severely hypertensive patients even when given in conjunction with thiazide drugs. The seemingly proper place for methyldopa is as an adjunctive agent to thiazide in patients with moderate hypertension or particularly as the primary agent in azotemic hypertensive patients. It may be used with thiazide and guanethidine in a triple-drug program in the treatment of severe hypertension.

Treatment may be started with methyldopa in dosage from 125 mg twice a day to 250 mg four times a day. The maximal lowering of blood pressure usually is seen in 2 to 4 days. Dosage may be increased progressively to 500 mg four times a day or 750 mg four times a day.

Disadvantages with methyldopa are the large number of pills often required in a day and the occasional inability to control severely hypertensive patients. Alteration of liver function, particularly the serum glutamic oxalacetic transaminase, should caution the use of this agent in patients with known liver disease. Fluid retention is occasionally troublesome. Drug fever has occurred rarely, as has apparent aggravation of angina pectoris. Transient drowsiness is the commonest of the minor side effects, but the drowsiness usually need not alter therapy.

Hydralazine (Apresoline).—Hydralazine is a drug with interesting properties, including the ability to relax smooth muscle. The effect of lowering blood pressure is possibly mediated both

centrally and peripherally. This drug has the somewhat unusual properties among the many antihypertensive agents of increasing both cardiac output and renal blood flow.

Hydralazine is of moderate potency in lowering blood pressure and usually is best used as an adjunct to basic treatment with thiazide or possibly Rauwolfia drugs. The desirable effect on renal function allows hydralazine to be used in azotemic patients, and the drug at times may be given to such patients in conjunction with methyldopa with good results. Hydralazine has a number of disadvantages, the chief of which perhaps is the late appearance of the hydralazine syndrome closely mimicking systemic lupus erythematosus. Rarely does this disorder occur in patients taking less than 200 mg of hydralazine per day for at least several months. Hydralazine is contraindicated in treatment of hypertensive patients who have rheumatoid arthritis, systemic erythematosus, or related diseases. Symptomatic ischemic heart disease may worsen with hydralazine treatment, and consequently angina pectoris or recent myocardial infarction serves as a contraindication to treatment with this drug. Other disadvantages of note with hydralazine are the headache, palpitation, and flushing that often appear early in the course of hydralazine treatment.

Despite the numerous potential problems in therapy, hydralazine often is well tolerated and very effective in normalizing the blood pressure in patients with mild-to-moderate hypertension. Side effects can be minimized by starting with 10 mg four times a day and increasing the dosage very slowly over several weeks' time to a maximum of 50 mg four times a day.

Pargyline (Eutonyl).—Pargyline is the first mono-amine oxidase inhibitor to be used widely specifically as an antihypertensive drug. The hypotensive mechanism of this drug relates to catecholamine metabolism. Pargyline, like methyldopa, has the desirable characteristic of reducing the total peripheral resistance. It also mildly reduces the cardiac output, renal plasma flow, and glomerular filtration rate.

Pargyline has a very slow onset of action and a prolonged effect. For this reason it can be given once a day, and increases in dosage should be made no oftener than once a week. Since postural hypotension may occur with treatment, the patient's standing blood pressure should be ob-

tained. Due to the prolonged action, overdosage with this drug may severely incapacitate a patient for several days.

Perhaps the main disadvantage with pargyline is the large number of drugs or foods that are contraindicated by the use of this drug. The paroxysmal pressor reaction from aged cheese containing large amounts of tyramine is now well known. Beverages such as beer or wine may also produce similar untoward effects. The patient taking pargyline should not be given other mono-amine oxidase inhibitors, nor should they be given methyldopa or parenteral reserpine. Central depressants may produce exaggerated responses in patients taking pargyline, or they may produce marked hypotension. Pargyline may at times cause marked insomnia, worsening of angina pectoris, and fluid retention.

Pargyline is best used as adjunctive therapy with a thiazide in patients with moderate or severe hypertension when contraindications exist to the use of other potent antihypertensive agents. Treatment may be started with 25 mg per day. The dose may be increased by 10 to 25 mg in the total daily dose every week or two weeks as required.

Rauwolfia Compounds—Rauwolfia drugs administered parenterally in large dosage (reserpine 2.5 to 5 mg every 8 hours) continue to be of major importance in treatment of hypertensive emergencies. These agents administered orally, are also used widely for the treatment of mild-to-moderate hypertension, often in combination with a thiazide. My colleagues and I have been less enthusiastic about the use of Rauwolfia drugs on a long-term basis primarily because of the potential of a rauwolfian-induced depressive reaction. An insidious onset may characterize this type of depression and neither the patient nor his physician may be aware of the condition until it has reached moderate severity.

Rauwolfia drugs have a slight-to-moderate lowering effect on blood pressure. The hypotensive reaction may relate to alteration in catecholamine metabolism rather than to a central effect as earlier believed. The advantages these drugs possess are smoothness of blood-pressure lowering effect, general absence of severe toxicity, and the small number of pills required daily.

Except for depression, serious side effects are rare, although activation of peptic ulcer does oc-

cur occasionally. Nasal stuffiness is the most frequent minor side effect, but one that usually does not require cessation of treatment. The slow onset of action of Rauwolfia agents, requiring several weeks for maximal effect, is also a disadvantage to the use of these drugs in some therapeutic situations.

Sedatives and Tranquilizers.—Patients with labile blood pressure and significant anxiety may benefit from administration of sedatives or tranquilizers. These drugs, however, should not be relied on as therapy for the patient with established diastolic hypertension except as adjunctive agents in an attempt to minimize anxiety as a factor in the causation of hypertension.

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Low-Fat Diet in Myocardial Infarction: A Controlled Trial

by a Research Committee (K. Ball, Central Middlesex Hosp, Park Royal, London) *Lancet* 2:501-504 (Sept 11) 1965

Although diets low in saturated fats and high in polyunsaturated fats reduce the raised blood cholesterol that is often present in coronary artery disease, it has not been definitely established that such diets reduce the risk of recurrences. To obtain evidence on this question, a controlled trial with a low-fat diet was carried out on 264 men, under the age of 65, who had recovered from a first myocardial infarction. On leaving the hospital they were allocated at random to one of two groups at each of the three hospitals participating

in this investigation. One group was placed on a low-fat diet, while the control group continued with their normal diet. The calculated daily fat intake showed a striking difference between the two groups, being about 45 gm/day in the low-fat group and from 110 to 130 gm/day in the control group. The patients on the low-fat diet lost more weight than the controls which supports a real difference in their dietary behavior. After four years, 38% of the low-fat group and 40% of the controls had had a relapse. Thus despite a lowering of the blood cholesterol and a greater fall in weight in the treated group, the relapse rate was not significantly different in the two groups. It is concluded that in men under the age of 65 who have survived a first myocardial infarction, a low-fat diet does not improve the prognosis.

Study of the UV-Induction of Mutations in Bacteria

F. L. Haas*

Demerec, in 1946, first demonstrated that a period of time elapses between mutagenic treatment and phenotypic expression of induced mutations. Two possible causes of this delay were apparent. Mutation induction could be immediate in the gene, and the lag represents time required for synthesis of a new enzyme; the second possibility was that mutation induction is not immediate, and time is necessary for establishment of the mutation in the gene. A time interval is obviously needed for synthesis of altered enzymes, but until recently it was not obvious that time was necessary for establishment of the mutation in the gene. In 1956, Witkin showed that the UV mutation induction process was completed prior to the first postirradiation cell division, but required amino acids. Haas and Doudney then obtained evidence that cellular nucleic acid precursors altered by UV were intermediates in mutation induction. "Fixation" of mutations in the genetic mechanism also required postirradiation RNA synthesis. The theory was advanced that RNA, modified by incorporation of radiation-altered uracil or uridine, led somehow to changes in newly synthesized DNA. Haas and Doudney then studied the molecular synthetic events following irradiation. Most of these experiments were carried out with *E. coli* WP2; the mutation was reversion of tryptophan requirement ($\text{try}^- \rightarrow \text{try}^+$). When the bacteria, after postirradiation incubation, were plated on minimal agar medium rather than a semi-complete nutrient-broth-supplemented medium, much lower levels of mutants were obtained. This indicated that induced nutritional mutations required synthesis of the altered enzyme in order to be phenotypically expressed; but mutation expression could also require synthesis of new DNA following radiation. This was tested by measuring simultaneously mutation and RNA, DNA and protein syntheses at graduated postirradiation time intervals. In these experiments, protein synthesis or RNA synthesis was selectively inhibited at various times to determine the involve-

ment of these macromolecules in DNA synthesis.

It was found that mutation fixation did not occur without previous RNA synthesis, and this first led us to suspect that mutation involves RNA. It was also established, using photo-reversal techniques, that the mutations were always in the genetic DNA, and they always appeared following the initial round of postirradiation DNA synthesis.

These investigations outlined the sequence of post-irradiation synthetic events of UV mutagenesis, but the physicochemical nature of the "*promutant*" state intervening between UV irradiation and mutation fixation, the nature of the primary *premutational* lesion in the DNA (if any), and the relationship between UV-promoted lethality and induced mutation needed clarification. Witkin, Kimball and others believed the DNA to be the primary site of UV damage. They considered that *mutation frequency decline* (the decline in mutations obtained when irradiated cells are held under conditions delaying DNA and RNA synthesis for a time following irradiation) was due to repair processes operative during the holding period. Haas and Doudney held that mutation frequency decline occurred when DNA synthesis was delayed long enough for the radiation-altered DNA and RNA precursors to be disposed of in cellular metabolism prior to replicating new DNA. They were then not available for building blocks or for misdirecting synthesis of the new DNA.

We next attempted to localize DNA involvement in mutation by using certain bacterial genetic exchange systems. Jensen and Haas developed methods for using genetic transformation, because consideration here could be restricted to changes in DNA. Dr. Doudney undertook the simultaneous study of relations between cell death and mutation. The technique which was developed was to irradiate the donor bacterium, then incubate these irradiated bacteria for various times following irradiation. After each time interval the RNA, DNA, and protein syntheses were measured as in previous experiments; but a sample of the DNA was also isolated and purified at each time for use as transforming principle on

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recipient bacteria. The value of this procedure was that we could be absolutely certain of that stage in events when the mutation became fixed in the DNA; and we could determine whether or not fixation occurred in the parental or daughter DNA.

In these experiments we used *Bacillus subtilis*, since in *E. coli* bacterial transformation does not occur. The strains used were *B. subtilis* 168 which requires indole (*ind*); strain SB25 which requires histidine (*his*) and indole (*ind*); and strain SB32 which requires histidine (*his*).

The DNA to be assayed was added to recipient cells which were then incubated for 30 minutes. Dilutions were filtered so as to impinge the cells on 0.45 μ Millipore filter discs, and these were incubated on moist nutrient agar plates for 3 hours before transferring to "mutation expression" agar for 48 hours' incubation.

Transforming DNA extracted from irradiated auxotrophic strain SB25 was used to transform isogenic unirradiated recipient cells of the same strain. That is:

Irradiated	Unirrad.	Unirrad.
<i>his</i> ⁻ transforming DNA + <i>his</i> ⁻ cells	\rightarrow	<i>his</i> ⁺ transformants

Since *his*⁻ transforming DNA is used to transform *his*⁻ cells, a prototrophic *his*⁺ transformant can arise only by mutation of the recipient cells or of the transforming DNA. SB25 is *ind*⁻ *his*⁻, so the mutations *ind*⁻ \rightarrow *ind*⁺ and *his*⁻ \rightarrow *his*⁺ were both scored.

Mutation transformation requires both a mutation and a transformation. It was important, therefore, to achieve the highest practical mutation frequencies. A UV dose permitting survival of 65% of the irradiated cells was settled on, and at this dose the mutation frequency of *ind*⁻ \rightarrow *ind*⁺ was 50 $\times 10^{-8}$ as against 2.3 $\times 10^{-8}$ spontaneous. The mutation frequency of *his*⁻ \rightarrow *his*⁺ was 3,200 $\times 10^{-8}$ as against 6.9 $\times 10^{-8}$ spontaneous.

A UV dose-dependent decrease in soluble DNA was found during the course of the experiments. This loss recovers with incubation, and recovery is complete when postirradiation DNA synthesis begins. It was considered that this non-extractable DNA could be non-covalently associated with a protein moiety due to the UV treatment, or else thymine dimers produced by UV in the DNA were responsible. In the latter case, this DNA might be extractable using aqueous solvents. This was

accomplished with trypsin and chymotrypsin treatment followed by dialysis. Since this early DNA showed no mutations of the *his*⁻ or *ind*⁻ genes, an additional marker was added by means of which we could check this DNA for its transforming ability. The marker selected was for glutamic acid requirement (*glu*⁻), and we tested the ability of the strain to transform *glu*⁻ auxotrophs to prototrophs. The cross used was irradiated (*his*⁻ *ind*⁻ *glu*⁺) cell DNA X unirradiated (*his*⁻ *ind*⁻ *glu*⁻) cells. From this test, many transformants were obtained (*his*⁻ *ind*⁻ *glu*⁺); therefore, this "early" DNA is good transforming DNA, but does not contain induced mutations.

Few mutation transformants were found to precede post-irradiation resumption of DNA synthesis. There is also little increase in mutation frequency after the DNA has doubled. UV doses allowing about 50% survival seemed to give optimum mutation transformant yields.

We next studied the effects of mutation frequency decline on the mutation transformant yields. When chloramphenicol challenge was used at 2 minutes after UV irradiation, no mutant DNA was recovered after any interval of postirradiation incubation. If the mutagenic site of UV action were *only* on the parental DNA, then there should be a *maximum* of mutations in DNA extracted at earlier postirradiation times before mutation lesion repair could occur.

Experiments were then run in which the post-irradiated culture was divided into three parts. One part was incubated as a control and treated as before; but the second and third portions were subjected to chloramphenicol challenge after 20 and 25 minutes incubation respectively. DNA was extracted and tested for transformation of *ind*⁺ and *his*⁺ mutations. The results showed that chloramphenicol promotes mutation frequency decline of both mutations in the transforming DNA. Only mutations "fixed" in the DNA at the time of chloramphenicol addition were retained. Twenty-five minutes after irradiation, DNA synthesis in the control sample resumed with the usual progressive increase in mutations. Chloramphenicol added at this time arrested mutation increase in transforming DNA. However, chloramphenicol challenge at 20 minutes after irradiation (here DNA synthesis is just resuming, and non-extractable DNA has recovered) markedly reduces mutations. Therefore, mutation fre-

quency decline occurs when the previously non-extractable DNA has become completely extractable.

These experiments show that the DNA contains no induced mutation *until after* postirradiation DNA synthesis is initiated, and that the production of these fixed mutations is limited to the first daughter DNA produced. At least one of the primary actions of UV in mutation induction must, therefore, be production of radio-chemical reactants which alter nucleic acid precursors subsequently built into the daughter DNA. These mutagenic molecules are subject to metabolic control until their polymerization as stable genic material, and then irreversible mutation is effected.

It had previously been shown that the UV-induced lag in DNA synthesis is overcome through RNA and protein synthesis; and Doudney and Haas had shown that in irradiated cells, maximum rate of DNA synthesis does not occur until the RNA has doubled before chloramphenicol inhibition. Doudney pointed out that cellular capacity to form RNA depends on the functional integrity of the DNA, and that failure to produce RNA must be due to disintegration of DNA in irradiated cells treated with chloramphenicol. Disintegration of DNA, cessation of RNA synthesis, and chloramphenicol-promoted death of UV-irradiated cells all follow the same time schedule that hinges on sensitivity of irradiated DNA to chloramphenicol. Therefore, breakdown of DNA in irradiated-chloramphenicol-exposed cells was investigated. The work was concerned mainly with recoverable and non-recoverable blocks to DNA synthesis induced by UV in *E. coli* strain WP2.

First it was found that each increased increment in UV dose increases delay in initiation of DNA synthesis; therefore, duration of the delay is definitely related to UV dose. There was not much effect at low UV doses on *rate* of DNA synthesis. However, above UV doses of 450 ergs/mm², a decrease in rate is noticeable which becomes greater with increasing UV dose. Above this critical dose level no further lag in DNA synthesis occurs; and the relative RNA at the critical point has about doubled, as compared with the amount present at exposure. There are clearly two separate effects of UV on DNA synthesis: (1) an induced lag in synthesis, and (2) a separate effect on rate of synthesis.

The next experiments were designed to determine whether DNA replication following UV irradiation occurs according to the Watson-Crick model for DNA replication. Some previous studies had led to some doubt in regard to this; and Doudney and Haas had theorized that, although replication according to the Watson-Crick model was the usual case, in irradiated cells this method was no longer possible—due to cross-linking in the DNA strands rendering them unable to separate normally in replication. Also, that an alternate DNA replicating mechanism involving an RNA-protein template took over for one round of DNA replication. This hypothesis was susceptible to test using the Meselson-Stahl (density gradient analysis) technique.

Bacteria were grown on N¹⁵ medium, irradiated with 450 ergs/mm² of UV (where there is no change in rate of DNA synthesis), and then transferred to N¹⁴ medium. All DNA at the time of radiation (parental DNA) was heavy; all synthesized after irradiation would be light (containing only N¹⁴) if produced by our theory, or intermediate (N¹⁴-N¹⁵) if produced by the Watson-Crick hypothesis. At intervals of postirradiation incubation, samples of bacterial DNA were purified and subjected to density gradient analysis. These analyses showed that immediately after irradiation only N¹⁵ DNA is present. Thirty minutes later no new DNA has yet been formed. After 50 minutes incubation (where DNA synthesis has started according to our previous analyses), hybrid (N¹⁵-N¹⁴) DNA has appeared. After 60 minutes incubation hybrid DNA is predominant, but there is a suggestion of N¹⁴ DNA starting to be formed. After 90 minutes N¹⁴ DNA almost equals the hybrid (N¹⁴-N¹⁵) DNA, and N¹⁵ DNA has disappeared. This indicates that all of the DNA is replicating, and shows that the Watson-Crick scheme for DNA replication is still operative following UV-irradiation.

When the above experiment is repeated with DNA from cells irradiated with 600 ergs/mm² UV (here there is a *rate* change in DNA synthesis), much the same picture appears as with 450 ergs/mm² *with one important exception*: the heavy N¹⁵ DNA never completely disappears. This shows that the change in DNA synthetic rate at the higher UV doses is due to complete inactivation of *some* of the DNA rather than interference with all the DNA.

Summarizing the results of the density gradient experiments briefly, they show that DNA replication is (according to the Watson-Crick hypothesis) following UV irradiation; there is a radiation-induced delay in DNA synthesis at low UV doses, and a decrease in rate of synthesis at higher doses which is due to inactivation of only *some* of the DNA.

Irradiated cells were grown to the point where all N^{15} DNA capable of doing so has replicated, and the percentage of replicating DNA has been determined for various UV doses. Up until 450 ergs/mm² UV, there is little decrease in DNA replication; above this dose increasing amounts are inactivated. This suggests the increasing cell death with increasing UV increments is due to the irreversible inactivation of DNA.

For example, at a UV dose of 525 ergs/mm², an increase in killing rate above that found at the lower doses occurs and the multiplicity of inactivation is approximately two. This suggests that two inactivation events are involved in killing above this dose.

When the relative rate of postirradiation DNA synthesis at any UV dose is compared with the relative surviving bacteria at the same dose, a relative correspondence is found between rate of DNA synthesis, amount of replicating N^{15} DNA, and cell survival.

Since the inactivation multiplicity is around two (corresponding to the two strands of double helix DNA), and since the amount of UV required to completely inactivate DNA synthesis (1,000-1,200 ergs/mm²) is double that producing maximum lag in DNA synthesis without change in synthesis rate, the possibility exists that a single inactivation in a given region of one DNA strand is repairable; but a second inactivation on the opposite strand in the same region results in the DNA being irreversibly inactivated.

Recall that at the UV dose giving maximum delay in DNA synthesis without its irreversible inactivation, the RNA doubles before DNA synthesis resumes. At any UV dose, chloramphenicol blocks recovery of DNA synthesis; and at the dose giving maximum delay without inactivation, doubling of RNA must occur before chloramphenicol inhibition of DNA synthesis is completely overcome.

When chloramphenicol is added before doubling of RNA, then DNA synthesis proceeds at a

linear rate directly related to the amount of RNA made before chloramphenicol addition. At any UV dose, that rate of DNA synthesis in chloramphenicol is quantitatively related to the proportional increase in RNA at the time of chloramphenicol addition.

Recall that at UV doses producing maximum lag in DNA synthesis without irreversible inactivation there is complete disappearance of the N^{15} DNA from N^{15} -labeled cells, indicating that no DNA was irreversibly inactivated at this UV dose. However, a part of the N^{15} DNA does not disappear when chloramphenicol is added prior to complete recovery of DNA synthesis, indicating that part of the DNA does not replicate. The appearance of hybrid and N^{14} DNA's with continued incubation shows that the larger part of the DNA does replicate. Thus, when cells recovering from UV inhibition are treated with chloramphenicol, the decrease in rate of DNA synthesis is not due to decrease in rate of formation of all DNA, but to part of the DNA being prevented from replicating *at all* by the antibiotic.

The experiments discussed here led us to adopt the following working model for UV effects on DNA and its recovery from these effects. The reversible UV-induced block to DNA synthesis is undoubtedly due to damage to the DNA. It is probable that this damage is production of thymine dimers in the DNA. DNA synthesis can probably proceed to the point of one of these thymine dimers, and then must stop. Duration of delay is dependent on the number of lesions induced in the DNA and, therefore, is directly related to UV dose. At the time of maximum UV-induced delay in DNA synthesis, the DNA chain is damaged to the greatest extent which can be repaired. One strand of the DNA double helix at each site must probably remain undamaged if the DNA is to be repaired. Thus, the recoverable block in synthesis could be caused by production of lesions on either strand of DNA; but there must be no overlap in this area which would prevent information necessary for repair coming from the opposite strand. Where overlapping does begin to occur (at higher UV doses), non-reversible inactivation of DNA is produced.

When DNA synthesis is delayed by UV to the maximum extent before inactivation, synthesis recovery is correlated with doubling of the RNA. It may be that some component involved in re-

covery is formed in correlation with RNA synthesis. At lower UV doses, where fewer lesions are produced in the DNA, proportionately less RNA synthesis is necessary before DNA synthesis proceeds. This would indicate that repair is specifically at sites of damage, and that the RNA involved in repair need be formed only to the extent that there is damage of this type. At any rate, the amount of RNA synthesized before recovery of DNA synthesis can be taken as a relative measure of the number of DNA lesions produced at a given

UV dose. Two possibilities as to the nature of this RNA seem likely: first, a specific protein or enzyme necessary for repair of the DNA lesions may be formed; secondly, the recovery process may involve formation of complementary RNA on the DNA as a template, which might function in restitution of the DNA after excision of the region containing a thymine dimer. Setlow and his group have demonstrated conclusively that DNA regions containing thymine dimers are excised.



New Directions in Mental Health Planning

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In the field of mental health, the community approach toward more effective services has been taken. The planning of comprehensive mental health services, based on the models of disease and growth, must be an interrelated process at federal, state, and local levels. It must cut across old political jurisdictions, agencies, disciplines, and departments, giving priority to services in the urban complex. The new era is one of community organization. It involves the horizontal reorganization of existing community institutions, the emergence of sophisticated counselor familiar with all the community resources, and the participation of citizens in the community programs.

Psychiatry, the University, and the Community

J. Romano (University of Rochester School of Medicine and Dentistry, Rochester, N.Y.) *Arch Gen Psychiat* 13:395 (Nov) 1965

A brief historical account is given of the development of psychiatry in the University Medical Center. Attention is drawn to mutual and reciprocal contributions between medicine and psychiatry which have emerged in great part from this relationship. It is predicted that the psychiatric units in general hospitals will play an important role in the development of community mental health centers. However, serious attempts should be undertaken to examine actual operations of all health services to be included in such centers so that one can learn clearly and objectively the advantages and limitations of each.

ABSTRACTS FROM MEDICAL STUDENT RESEARCH FORUM

Program

Medical Student Research Forum

University of Arkansas Medical School

November 18, 1965

Dr. Coy D. Fitch and Mr. James Suen, Presiding

- 9:00-9:15 VISUAL DISTURBANCE AFTER DIGITALIS THERAPY: RESULTS USING THE ANOMALOSCOPE AND ELECTRORETINOGRAM AFTER DIGOXIN ADMINISTRATION, William S. Pickens, Department of Physiology
- 9:15-9:30 HEPATIC METABOLISM—3-H CORTISOL IN MICE, Robert Maxwell, Department of Pediatrics
- 9:30-9:45 THE EFFECT OF AZATHIOPRINE ON THE ANTIBODY RESPONSE IN RABBITS TO VACCINIA AND SALMONELLA ANTIGENS, John Wells, Department of Microbiology
- 9:45-10:00 MINIMAL BRAIN DYSFUNCTIONING, James A. Boydstun, Department of Psychiatry
- 10:00 INTERMISSION
- 10:15 CURRENT TRENDS IN MEDICAL EDUCATION, Dean Winston K. Shorey
- 10:45-11:00 UTILIZATION OF MALTOSE BY THE NEWBORN, Troy F. Barnett, Department of Pediatrics.
- 11:00-11:15 PHYSIOLOGICAL AND HISTOCHEMICAL STUDIES OF THE SUB-COMMISSURAL ORGAN, G. Doty Murphy, Department of Anatomy
- 11:15-11:30 STUDIES ON LEUCINE KETO ACID METABOLISM IN INFANT RAT AND RABBITS—RELATION TO MAPLE SYRUP URINE DISEASE, R. H. Fiser, Department of Pediatrics
- 11:30-11:45 CREATINE EFFLUX IN MICE WITH HEREDITARY MUSCULAR DYSTROPHY, Lackey G. Moody, Department of Biochemistry

9:00-9:15 A.M.

VISUAL DISTURBANCE AFTER DIGITALIS THERAPY: RESULTS OBTAINED USING THE ANOMALOSCOPE AND ELECTRORETINOGRAM AFTER DIGOXIN ADMINISTRATION. *William S. Pickens*, Department of Physiology.

Of the many signs and symptoms of digitalis intoxication, one of the most interesting have been abnormal visual sensations. Some of these have been the "cornflower phenomenon", yellow vision, decreased green sensitivity and many others including blindness and paresis of the ocular muscles. Our purpose has been to determine the effect of therapeutic doses of digoxin on vision, using the anomaloscope to determine red and green sensitivity and the electroretinogram to study critical frequencies of fusion. Anomaloscope results on thirteen patients taking digoxin are reported; two of these patients were digitalis intoxicated. A double-blind study on twenty volunteer subjects using the anomaloscope and electroretinography was also done. Studies were done before and after medication on each subject.

The results of these studies have shown that there is a statistically significant decrease in green sensitivity with therapeutic doses of digoxin. There is also a significant decrease in the critical frequency of fusion with red and green lights but the decrease found with white, blue and yellow lights was not found to be significant.

Therefore it is shown that there is a consistent change in spectral sensitivity and critical frequency of fusion with therapeutic doses of digoxin which are not of toxicity manifestations.

9:15-9:30 A.M.

HEPATIC METABOLISM — ³H CORTISOL IN MICE, *Robert Maxwell*, Department of Pediatrics.

The liver is considered a major organ for cortisol degradation but little definitive information is available concerning the intracellular site of degradation. This study was designed to establish the intracellular partition of radioactive cortisol in mouse liver and the portion remaining as unaltered cortisol in adult as well as 48 hour, 5 and 21 day old mice.

The mice were injected with tritiated cortisol (⁷⁻³H) I.P. and sacrificed at 5 minutes. The livers were homogenized in .25M sucrose and nuclear,

mitochondrial, and microsomal plus supernate fractions prepared by centrifugation. The fractions were extracted with ethyl acetate and 100 ug of cold cortisol was added to each fraction. The cortisol was purified by paper and silica gel thin layer chromatography and then acetylated with ¹⁴C acetic anhydride. Percentages of the original tritium radioactivity as cortisol were determined by Porter-Silber colorimetry and from the specific activity of the isotope derivatives.

The data obtained included: the difference of intraportal vein and I.P. administration, the difference in nuclear radioactivity when fractioned in .25M and hypertonic sucrose, the percentage distribution of radioactivity in the different age group fractions, and the radioactivity recovered as cortisol in nuclear, mitochondrial, and supernatant fractions for the four age groups.

The percentage of radioactivity as cortisol appears to increase in the mitochondrial and microsomal plus supernatant fractions with an increase in age. The percentage of radioactivity as cortisol appears to decrease with increasing age in the nuclear fraction. The amount of radioactivity in the nuclear and mitochondrial fractions at five minutes appears to be greater in the younger mice than in the adults.

9:30-9:45 A.M.

THE EFFECT OF AZATHIOPRINE ON THE ANTIBODY RESPONSE IN RABBITS TO VACCINIA AND SALMONELLA ANTIGENS, *John D. Wells*, Department of Microbiology.

The purpose of this study was to determine the effect an antipurine drug, Imuran, has on the normal antibody response to: (1) a viral antigen, Vaccinia, and (2) a bacterial antigen, Salmonella. White adult New Zealand rabbits were chosen as the experimental model. Over fifty rabbits weighing 1-2 kilograms were used in the Vaccinia determinations, and approximately 12-15 animals were used in the Salmonella test.

The general format of the study included the following procedures:

1. Standardization of the antigen and determination of the optimal concentration for test inoculation.
2. The administration of Imuran in the recommended dose of 5 mg./kilogram/day for a total of 14-16 days, including 2 days prior to chal-

lenge with the test antigen.

3. Obtaining serum samples at the end of each test period for appropriate determination of antibody titers.

4. Re-challenging same test animals at variable intervals of time to determine effects of Imuran on the secondary antibody response.

5. Performing neutralization tests on the skin of normal rabbits to determine level of antibody titer in the Vaccinia test animals, and agglutinations (tube method) for determination of antibody titer against Salmonella.

Results of these studies indicate that there is some impairment in the production of circulating antibody in the rabbit when treated with Vaccinia. The secondary response did not appear to be affected as strongly as the primary. The formation of circulating antibody against Salmonella was not inhibited by Imuran.

9:45-10:00 A.M.

MINIMAL BRAIN DYSFUNCTIONING,

James A. Boydstun, Department of Psychiatry.

Minimal brain dysfunctioning (MBD) is defined clinically as consisting of some combination of the following symptoms: hyperactivity, impulsivity, emotional lability, short attention span, specific learning disabilities in reading and arithmetic. We selected 28 MBD's and 28 normals, and studied each child in a number of specific test situations including conditioning, generalization, sensory discrimination, visual motor coordination, and psychological performance. This report is restricted to the results of the last three of the just mentioned tasks.

We found MBD's to differ from normals in reading ability, magnitude of behavioral abnormality, hyperactivity, speech defects, visual-motor coordination, auditory discrimination, inability to follow instructions, degree of aphasia, and their pattern of scores on the Wechsler Intelligence Test for Children ($p < .01$ in each case). Some of these variables were used in selecting MBD-children and should have discriminated the two groups. But the fact that so many of these dependent variables were significant suggests that most MBD-children have a number of defects; i.e., the various symptoms entering into the diagnosis tend to be positively correlated. We also found in this study additional tests which discriminate MBD's from normals that are not now but could be used in the diagnosis.

10:45-11:00 A.M.

UTILIZATION OF MALTOSE BY THE NEW-BORN, *Troy F. Barnett*, Department of Pediatrics.

Recent studies have demonstrated that premature and term infants have a relative deficiency in their ability to split and absorb lactose. In premature infants this deficiency was shown to be present only for the first two weeks of life. The purpose of this study was (a) to determine the newborn's ability to utilize the disaccharide, maltose and (b) to determine if substrate induction is responsible for the increased ability of premature infants to utilize lactose after two weeks of age.

Forty-five maltose (1.75 gm/Kg) and five lactose (1.75 gm/Kg) tolerance tests were performed on term and premature infants. All term infants were 0-3 days old. Premature infants were tested at 0-3, 5-7, 11-14, 17-21 days of age. In order to determine if substrate induction of lactase occurred, premature infants who received a formula containing no lactose (Sobee or Lambase) were given lactose tolerance tests after two weeks of age. In all tolerance tests capillary blood was obtained before and at 30, 60, 120 and 180 minutes after carbohydrate administration. The filtrate was prepared by the Zn (OH)₂I method as described by Hjelm, and blood glucose was determined by the enzymatic reaction utilizing glucose oxidase (Glucostat).

Data from lactose and glucose tolerance tests performed by Boellner et al using the same procedure were available for statistical comparison. Statistical analysis (T test with $C = .05$) show the following:

1. Premature and term infants in the first 3 days of life utilize maltose significantly better than lactose.
2. Premature infants utilize maltose as efficiently as term infants during the first three days of life.
3. The 0-3 day old term infant handles maltose and glucose equally well.
4. Prematures can utilize glucose significantly better than maltose only for the first three days of life.
5. There appears to be no substrate induction of lactase. Two to three week old premature infants who had no lactose in their diet utilize lactose as well as similar age infants receiving

lactose from birth.

11:00-11:15 A.M.

PHYSIOLOGICAL AND HISTOCHEMICAL STUDIES ON THE SUB-COMMISSURAL ORGAN, G. Doty Murphy, Department of Anatomy.

The sub-commissural organ (SCO), a group of elongated, highly vascular, specialized ependymal cells, lies beneath the posterior commissure of the midbrain. Controversy has developed concerning hypotheses that the SCO affects anti-diuresis and alters adrenocortical function. This study concerns anti-diuretic and pressor effects of SCO extract. Cats were nembutalized and prepared for continuous recording of blood pressure and urine production using the Physiograph. Either hypertonic (5%) saline, SCO extract, or a serial combination of the two was given intravenously following stabilization. Definite pressor and anti-diuretic effects were noted with SCO extract, even following saline-induced diuresis. Cerebral cortical extract gave neither effect. Animals were then sacrificed by intracardiac perfusion with glutaraldehyde or potassium dichromate-formalin fixative. The SCO was removed and following further treatment, sectioned and mounted for histochemical or histologic investigation. Histochemical studies showed appreciable amounts of acetylcholinesterase, which were altered by experimental infusions. Stained organs demonstrated alterations in cellular content between experimental and normal animals. Physiologic and histochemical results are correlated with a hypothesis for mechanism of action.

11:15-11:30 A.M.

STUDIES ON LEUCINE KETO ACID METABOLISM IN INFANT RAT AND RABBITS—RELATION TO MAPLE SYRUP URINE DISEASE, Robert H. Fiser, Department of Pediatrics.

Typically maple syrup urine disease—branched chain ketoaciduria manifests itself early in the neonatal period by the absence of a Moro reflex, respiratory irregularities, opisthotonus, marked mental retardation and inanition. Coincident with the appearance of the clinical symptoms is

the excretion of a pleasant-smelling urine having an odor resembling that of maple syrup, and containing large amounts of the alpha-keto acids which would be derived from deamination of the amino acids leucine, isoleucine, and valine. Variants have been noted and two such cases will be mentioned.

Since the metabolic block is presumed to be at the level of oxidative decarboxylation of the keto acids investigations were undertaken to study reactions which were thought to be involved. The effect of alpha-keto-isocaproic, keto acid of leucine, in vivo and in vitro on C^{14} acetate conversion to CO_2 , cholesterol and total lipids on young rats was studied. In vitro and in vivo effects of alpha-keto-isocaproic on CO_2 conversion from labeled glutamate and alanine in both young rats and rabbits are also reported.

11:30-11:45 A.M.

CREATINE EFFLUX IN MICE WITH HEREDITARY MUSCULAR DYSTROPHY, Lackey G. Moody, Department of Biochemistry.

The objective of this research was to study the mechanisms maintaining intracellular concentration of creatine and to elucidate the defect in creatine metabolism in Hereditary Muscular Dystrophy.

I used strain 129 mice from the Jackson Memorial Laboratory as a model. These mice were loaded with creatine- C^{14} , the Extensor Digitorum Longus was dissected from both legs and incubated in Krebs-Ringer bicarbonate buffer, and the radioactivity of the buffer and the muscle homogenate was counted.

The results show that little creatine leaves the muscle in the oxygenated system, that there is no difference in controls and dystrophics under oxygen, and that controls lose more creatine than dystrophics in the absence of oxygen.

Therefore, this work suggests that there is not a membrane defect in muscular dystrophy, that the muscle membrane is not primarily responsible for high intracellular creatine concentration, that possibly there is intracellular binding of creatine, and that control muscles can mobilize their creatine stores faster.

Report on Actions of the House of Delegates American Medical Association Nineteenth Clinical Convention

NOVEMBER 28—DECEMBER 1, 1965

PHILADELPHIA, PENNSYLVANIA

PHILADELPHIA, Dec. 1 — "Usual and customary" fees and prevailing fees, abortion and sterilization, billing and payment for medical services, membership dues, organization of the House of Delegates, and federal health care laws were among the major subjects acted upon by the House of Delegates at the American Medical Association's 19th Clinical Convention held Nov. 28-Dec. 1 in Philadelphia.

President James Z. Appel in his address to the House on Sunday described medicine's efforts "to guide in the best possible direction the actions that government agencies are now taking to activate existing law (PL. 89-97)." He then reviewed the activities and responsibilities of the six technical advisory committees under the Medicare law.

"Their suggestions have been received favorably in most instances," he said. "And we are hopeful that they will be translated into the final published regulations . . . (but) we know that in certain significant instances this will not be true". (See detailed story on Dr. Appel's address on page one of the December 6 issue of *The AMA News*.)

The House elected Dr. Drew M. Petersen of Ogden, Utah, to fill an unexpired term on the Council on Medical Service.

Final registration reached a total of 9,423, including 4,619 physicians.

"Usual and Customary" and Prevailing Fees

One of the most controversial issues before the House and the Reference Committee on Insurance and Medical Service was the "usual and customary" fee concept and the prevailing fees program of the National Association of Blue Shield Plans.

The House reaffirmed its support of the "usual and customary" fee concept as the basis for reimbursing physician participants in government programs at all levels of government. It also urged "the individual physician's usual and customary fee concept to all third parties".

It took this action after modifying a Board of Trustees' report on the new "prevailing fees" program of NABSP. The modified report recommended:

"That the concept of the prevailing fees program of the NABSP be noted as one of the methods of compensation in those regions where the prevailing fees program is approved by the local or state medical society."

In its report, the Board recalled a statement adopted by the House at the 1965 Annual Convention, which recommended that when government assumes financial responsibility for an individual's health care, reimbursement for professional services should be on the same basis as in the case of other indispensable elements of health care.

"Therefore, reimbursement for the services of physicians participating in government-supported programs should be on the basis of 'usual and customary' fees", the statement said.

Abortion and Sterilization

Recommendations for the enactment of legislation to legalize abortion and sterilization under certain conditions were referred to the Board for further study. This action was taken after the House had received a report from the Board containing the recommendations of the Committee on Human Reproduction.

The House did suggest that the AMA can "render a distinct public service in this matter by conferring with other interested groups such as lawyers, clergy, sociologists, legislators, and government administrators."

It concurred in the reference committee's report that "it is not appropriate at this time for the AMA to recommend the enactment of legislation in this matter (abortion) for all states. The problem is essentially one for resolution by each state through action of its own legislature."

The report also stated that "it is true that there

are medical implications in such legislative decisions; physicians in each state should freely provide information and guidance on these medical implications. However, enacting laws to integrate the medical aspects with the moral, ethical, religious, economic, social tradition, and other aspects of the problem is clearly the exclusive prerogative and the responsibility of the legislature of each separate state."

In its report the committee said the problems of sterilization "appear subject to the same general considerations as the problems of abortion."

On the problem of contraception the House reaffirmed its 1964 policy statement that "the prescription of child-spacing measures should be available to all patients who require them, consistent with their creed and mores, whether they obtain their medical care through private physicians or tax or community-supported health services."

It also endorsed a statement that "appropriate legislation be enacted, wherever necessary, so that all physicians may legally give contraceptive information to their patients, consistent with the policy statement of December, 1964, and with the judgment and conscience of each individual physician."

Billing and Payment for Medical Services

Eight statements on fees charged by physicians for medical services were affirmed by the House. These are applicable "irrespective of whether such fees are paid by the patient, or paid or reimbursed in whole or in part under Public Law 89-97, or any other third party plan," the House stated. Here are the eight statements:

- "1. The intimate relationship between physician and patient is served best without the interposition of any third party carrier, whether in the area of diagnosis and treatment or the payment for these services.
- "2. It is the patient's responsibility to deal with third party carriers in the area of financial assistance provided that the physician is at all times mindful of his obligations to the patient under Section I of the Principles of Medical Ethics.
- "3. The physician-patient relationship is served best when there is an advance understanding regarding the payment of fees and the physician bills the patient directly for services rendered. However, the physician is ethically free

to choose in each case the manner in which he is to be compensated, based upon the exercise of his independent judgment.

"4. The American Medical Association does not approve of any program which may directly or indirectly promote the charging of excessive fees or which interferes with the physician's right to charge fees commensurate with the services he renders.

"5. The American Medical Association opposes any program of dictation, interference, or coercion, whether direct or indirect, affecting the freedom of choice of the physician to determine for himself the extent and manner of participation or financial arrangement under which he shall provide medical care to patients under Public Law 89-97, or other third-party plans.

"6. It should be remembered that insurance does not create any new wealth. It merely assists in conservation. Insurance may conserve the ability of an insured person to fulfill his normal financial obligations. It does not enhance his ability to discharge added responsibilities if they are in the form of increased fees. To use insurance as an excuse to revise professional fees upward is but to contribute to the defeat of its purpose. If these indisputable and self-evident facts are not embraced by the entire membership of the profession, then it will have dealt irreparable harm to the whole movement. Also, any such failure might give impetus to whatever demand now exists for forcing rigid benefit schedules on the professional. (The foregoing is from a report of the Council on Medical Service to the House of Delegates at the Clinical Meeting in 1954.)

"7. The charging of an excessive fee is unethical and is contrary to Section 7 of the Principles of Medical Ethics. The physician's fee should be commensurate with the services rendered and the patient's ability to pay. (The foregoing is from a report of the Judicial Council which was approved by the House of Delegates at the Clinical Meeting in 1960.)

"8. It is not contrary to conscience for the physician to consider the patient's ability to pay if he fixes his particular fee within reasonable limits. In matters relating to fees, the physician should try, to the best of his ability, to insure justice to the patient and himself and respect for his profession. (The foregoing is from an opinion of the Judicial Council in 1958.)"

Membership Dues

A \$25-a-year increase in membership dues, effective Jan. 1, 1967, was endorsed by the House when it was informed by the Board that additional income will be needed by then to avoid deficit spending.

The increase, to \$70 a year for the AMA's 165,000 dues-paying members, will go before the House for final action at the 1966 Annual Convention because AMA Bylaws state that annual dues may be prescribed by the House only for the ensuing calendar year.

Board Chairman Percy E. Hopkins, M.D., told the House that "during 1964 and 1965, the AMA will have incurred an operating deficit of more than 1 million dollars." The budget for 1966, he said, is now narrowly in balance.

The 1966 budget calls for spending some 27.6 million dollars, Doctor Hopkins reported, including almost 10½ million dollars on scientific programs, 5 million on health education and other medical service programs, more than 1 million to maintain physician records, and another million in the communication's program. Travel and meeting costs will exceed 2 million dollars.

"In a society," Doctor Hopkins said, "which has adopted inflation as a national policy and in which our system of medical care has become a pawn of politicians, it is not realistic to expect that we can limit tomorrow's programs to yesterday's income. Already demands are mounting from medical societies and physicians for a stronger and more effective AMA. These needs must be met and they must be adequately financed."

Doctor Hopkins said that AMA's income in 1960 was just under 16 million dollars, while in 1966 it will exceed 27 million, an increase of 11 million. "This represents increases of 3.9 million dollars from membership dues, 4.3 million in advertising revenue, and 2.8 million from other sources.

"During this same period," he stated, "the challenges thrust upon the Association required even greater expenditures—from 15.7 million dollars in 1960 to a need for 27.6 in 1966."

In support of the dues increase, the House noted that AMA's dues-paying members provide less than 30 per cent of the Association's income.

Gundersen Report

The House approved some of the many recommendations of the Committee to Review the Or-

ganization of the House (the Gundersen Committee) but it did not approve a number of others.

Here are the House actions on some of the committee's recommendations:

Size of the House of Delegates. Approved the suggestion that the growth of the AMA House be slowed down after it reaches 250 members. When it reaches that size, the apportionment ratio will be automatically raised from one delegate per 1,000 members, or fraction thereof, to one delegate per 1,250 members, or fraction thereof, in electing further delegates to represent each state association.

- *Reports of Councils and Committees.* Rejected the proposal that reports of the Council on Medical Service and Medical Education be transmitted through the Board of Trustees before being presented to the House.

- *Reference Committees.* Adopted the recommendation that there be three reference committees by name—Amendments to Constitution and Bylaws, Credentials, and Rules and Order of Business—and as many others be appointed "as may be required to consider the items of business before the House."

- *Tenure of Subcommittee Members of Standing Committee.* Approved a change in the Bylaws "to limit to specified terms of one to three years the tenure of members of special committees of the councils and committees of the House, with a limitation of 10 consecutive years of service."

- *Committee on Medical Practices.* Concurred in a recommendation that the Committee on Medical Practices be discharged with thanks and its responsibilities "be assigned by the Board to existing councils and committees."

- *Committee on Insurance and Prepayment Plans.* Rejected a plan to make this committee a council of the Board, and the committee was retained under the Council on Medical Service.

- *Tenure of Office of Trustees.* Turned down a proposal that would have affected the tenure of office of AMA trustees.

- *Affairs of Standing Committees.* Directed that a Bylaws change be prepared to remove the privilege of the Councils on Medical Service and on Medical Education of nominating to the Board the secretary of the respective council. Also approved the suggestion that a vice chairman be elected by each standing committee of the House.

Resolutions to House. Rejected the idea of a

resolutions expediting committee and the recommendation that the deadline for resolutions be 10 days prior to the House meeting.

Federal Health Care Laws

The House took a number of actions with regard to federal health care laws passed in 1965, such as PL 89-97 (Medicare) and PL 89-239 (the Heart Disease, Cancer and Stroke Amendments). These actions included:

—“That the AMA immediately seek remedial action to delete the requirement in Public Law 89-97 that a patient be hospitalized to establish eligibility for nursing home care.”

—“That the AMA immediately seek remedial action to amend Public Law 89-97, Part B, Title XVIII, by deleting the word ‘receipted’, from Section 1842—Part 3, Item B, line (ii), and substituting ‘such payment will be made on the basis of a method of payment so arranged to preserve and continue the professions current practice of billing.’” Also approved “that the AMA recommend that the Department of Health, Education and Welfare establish that an agreement for payment between the patient and physician constitutes valid evidence of services rendered.”

—Authorized a study of the constitutionality of PL 89-97 by calling on the Board to “take such action as may be necessary and appropriate to provide for the study and investigation of all aspects of PL 89-97 for the purpose of determining possible court action to test the legality and constitutionality of any provision or regulation issued under the law,” and authorized the Board to “initiate such legal proceedings as it may deem advisable to implement the purpose and intent of this resolution.”

—Endorsed the Council on Medical Services’ recommendation “that the state and local medical societies be urged *at this time* to assume leadership in the establishment of local advisory committees” under the Heart Disease, Cancer and Stroke Amendments of 1965. The House noted that a National Advisory Council under PL 89-239 already has been appointed by federal officials and that the AMA was not given an opportunity to recommend possible appointees to the Council. “Therefore,” the House declared, “active physician participation at the state and local levels is of utmost importance.”

—Urged HEW to “seek consultation with practicing physicians” in formulating regulations un-

der Title XIX as has been done under Title XVIII of the medicare law. It also instructed the AMA President and AMA Advisory Committee to HEW to “offer and urge such consultation.”

—Adopted a resolution that the Board “continue to seek, through all appropriate means, the implementation and administration of federal medical and health programs other than those of the Armed Forces and Veterans’ Administration by the Surgeon General of the Public Health Service, and especially those programs under Title XIX of PL 89-97.”

—Declared that the AMA Advisory Committee on PL 89-97 and 89-239 should persist in its efforts to achieve “practical recognition” by HEW of the differences between utilization review and claims review. The House adopted a report of the Council on Medical Service which said that “widespread confusion exists between the utilization review function and the claims review function”. It also adopted a series of recommendations in the report aimed at clearing the confusion.

Other Important Actions

A study committee to evaluate planning techniques and development, which was established by the Board of Trustees, was concurred in by the House. The committee was given the tasks of (1) reviewing and studying current planning procedures in AMA, and (2) studying and recommending new mechanisms for organizational arrangements to achieve more effective planning and development in the future. Membership on the committee includes five Board members, the chairmen of the Councils on Medical Service, Medical Education, and Legislative Activities, the Speaker of the House, and two House members selected by the Speaker.

Disapproval was expressed by the House of portions of the Coggeshall report, “Planning for Medical Progress Through Education,” published earlier this year by the Association of American Medical Colleges. The House opposed “the basic philosophy” of portions of the report; such as:

—That the AAMC should “serve as spokesman for organizations concerned with education for health and medical sciences” and “no other organization is in a comparable position to bring together and express a comprehensive view.”

—That “the professional aspects of education for health and medical sciences should be re-

garded as an essential function and fully integrated component of university organization, with decreasing dependence upon or control by organized professions and their related associations."

A policy statement on federal aid to medical education was adopted by the House. It urges that (1) a major objective of the policies of the AMA should be to place the control of the full range of medical school functions in their institutional governing bodies, (2) action of the AMA should be designed to achieve this objective by proposal of appropriate legislation, and (3) the AMA should foster diverse sources of support for medical schools under circumstances that prevent any extramural source from exercising controlling influence.

The House approved a resolution aimed at responding immediately at the national and local levels to statements discrediting medicine. It directed the Board to provide for such response by the AMA and encouraged state and local medical societies to react similarly to statements appearing at the local level and concerning matters within the society's competence and knowledge.

There were scores of other actions by House. Briefly here are some of them:

- Defeated a proposal to set more stringent requirements for calling a special session of the House.
- Approved a Bylaws change permitting recognition by affiliate AMA membership of physicians "who are members of the chartered national medical societies of foreign countries, to be approved and nominated by the Judicial Council" and members of the press who have served medicine well.
- Approved a resolution calling for continued efforts, through "all appropriate channels," to achieve a separation of billing and payments for professional fees from hospital charges under insurance contracts written by the health insurance industry.
- Urged the American Hospital Association to "assist the hospitals of the U.S. to establish a system of uniform cost accounting and billing."
- Asked that all colleges and universities should have health education programs for their students.
- Commended physicians in government service for "their support of the medical profession and their service to the public."
- Agreed to a re-writing of two sections of a model agreement between hospitals and physicians providing professional services in hospital emergency departments to conform to principles established by the House.
- Approved measures aimed at decreasing substantially the perinatal death rate through perinatal study committees in hospitals.
- Requested state medical associations to act to assure that physicians are properly represented on state Hill-Burton hospital advisory councils.
- Asked the Federal Aviation Agency to change its regulations so that any person applying for a pilot's license would be giving his implied consent to sobriety examinations by aviation officials.
- Adopted a statement by Edward R. Annis, M.D., commending Arthur Hess, the director of the Social Security Administration's Bureau of Health Insurance, for his "wholehearted cooperation" with the AMA's Advisory and technical committees on medicare.
- Decided that AMA Conventions should continue to open on Sunday, and that the inauguration of the incoming president should be held on Tuesday evening of the Annual Convention.
- Instructed the Council on Medical Service and its Committee on Welfare Services to develop for the AMA its definition and principles for the determination of medical indigency.
- Accepted for information an opinion adopted jointly by the Council on Medical Service and the Judicial Council which states that "... when a physician assumes responsibility for the services rendered to a patient by a resident or an intern, the physician may ethically bill the patient for services which were performed under the physician's personal observation, direction and supervision."
- Repeated a previous policy statement urging the creation of a separate post in the Cabinet of the President of the U.S. for a Secretary of Health.
- Commended past president Edward R. Annis, M.D., for his leadership, his dedication, and his tremendous contribution to medicine's campaign to preserve the world's finest system of medical care.
- Elevated to status of "Council" the Committee on Environmental and Public Health.
- Approved the following schedule of AMA Conventions:

Annual Conventions—1966, Chicago; 1967, Atlantic City; 1968, San Francisco; 1969, New York City; 1970, Chicago.

Clinical Conventions — 1966, Las Vegas; 1967, Houston; 1968, Miami Beach; 1969, Denver; 1970, Boston.

Opening Session

The executive vice president outlined the programs, facilities and activities of the AMA headquarters and the services given by the Association through its various councils and committees to the profession and the public. His presentation was at the request of the House during the October, 1965, Special Convention in Chicago.

He warned the House that the federal government, the university-medical school complex, and the hospital system is combining "to mold and shape the pattern of health care in this country."

He said that this "triumvirate of forces" has "enormous potential for drastically altering the pattern of medical education, research and service."

He also urged the medical profession to be "prepared to seize the initiative and keep it" on the vital issues of medical education, rising health care costs, quality controls, ethics and discipline, and strengthening the medical federation at the state and local levels.

Monday Session

Contributions totaling more than \$463,000 were presented to the American Medical Association Education and Research Foundation.

These were: \$203,655 from the California Medical Association, \$189,000 from the Illinois State Medical Society, \$45,000 from the New Mexico Medical Society, \$15,610 from the Utah State Medical Association, \$9,605 from the Medical and Chirurgical Faculty of Maryland, and \$510 from the Woman's Auxiliary to the Clackamas County, Ore., Medical Society.

F. J. L. Blasingame, M.D.
Executive Vice President
American Medical Association



The Laurence-Moon Syndrome: Association With Hypogonadotropic Hypogonadism and Sex-Chromosome Aneuploidy

P. Bowen (University of Alberta Hosp, Edmonton, Alta, Canada) *Arch Intern Med* 116:598 (Oct) 1965

Five individuals in a sibship of eight had mental retardation, ocular changes resembling retinitis pigmentosa, and minor skeletal anomalies (without polydactyly). Four members had hypogonadotropic hypogonadism, and one lacked hypogonadism, one of the former being a chromatin-positive, XXY male. A deficiency of germ cells in the majority of the seminiferous tubules in this individual is believed to be a primary effect of the XXY sex-chromosome complement. The significance of the association of sex-chromosome aneuploidy with the Laurence-Moon syndrome is not known.

Psoriatic Arthritis

E. Zachariae, H. Zachariae and M. Salling Larsen (Rigshospitalet, Copenhagen) *Nord Med* 74:857-861 (Sept 2) 1965

Clinical and serologic studies were made in 40 patients (22 men and 18 women) with psoriasis and with signs of arthritis. Four had positive Rose-Waaler or latex-fixation tests, whereas the other 36 patients were all seronegative. The studies clearly revealed that the term "psoriatic arthritis" is justified, and that it can be applied to the disorder in patients with psoriasis and seronegative arthritis. Psoriasis appeared before the joint symptoms in 21 patients and simultaneously with them in 8 patients; whereas in the remaining 8 patients the joint symptoms developed before the psoriasis. The arthritis involved distal finger joints in nearly two thirds of the patients.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*

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BROW PRESENTATION

Donald R. Lewis, M.D.

Brow presentation may be defined as the cephalic presentation in which the presenting part is the area between the glabella and the anterior fontanel. It is one of the more infrequent but more challenging of the various abnormalities of presentation. Because of this infrequency of occurrence, there has been a general tendency either to ignore brows in reviewing cases of deflection attitudes or else to combine the brows with face presentations thus obscuring significant statistical differences that may exist. It is the contention of this author that there is a significant difference in the management and mechanism of labor in brow presentation which warrants separate study.

There is a noticeable sparsity of material in the American literature prior to an article by Hellman et al. in 1950 in which he reviewed all of the face and brow presentations at Johns Hopkins Hospital from 1896 through 1948. The incidence of brow presentation ranges from a high of one in six hundred deliveries as reported by Queen Charlotte's textbook of Obstetrics (1948) to a low of one in three thousand deliveries as given in the Short textbook of Midwifery (figures based on Guy's Hospital Reports). An average incidence of one in 2,314 is cited according to combined statistics from publications compiled by Kenwick.

Review of Literature Concerning Brow Presentations

There is no general agreement as to the etiology of brow presentation. The majority of authors

consider cephalopelvic disproportion as the most important factor. In a total of one hundred brows collected by a compilation of eight authors, as cited by White, thirty-three were listed as secondary to contracted pelvis; five due to large baby; three due to small baby; four secondary to cord around the neck; one compound presentation; one bicornuate uterus; and thirty-three due to unknown cause.

The reason for the discrepancy when the above figures are totaled is that some authors did not give figures for all their cases. Other factors mentioned by various authors include: prolapsed cord, hydramnios, placenta previa, multiple pregnancy, myomas in the lower uterine segment, and multiparity.

White seriously doubts all of the commonly listed etiologies except multiparity. He is certain that deflexion occurs because of increased tone of the extensor muscles of the fetal neck. He states that the assumption of a flexion attitude by the fetus is intrinsic and gives as evidence the fact that in hydramnios the fetus is usually in a position of flexion although there is nothing to restrain it from extension. Gibberd in 1935 was the first to draw attention to this when he described three cases which showed muscle spasm as a cause of malpresentation. White's argument is quite convincing and will be discussed in more detail later.

The diagnosis of brow presentation is rarely made early in labor. No author reports much greater than 50% correct diagnosis prior to the second stage. In a collection of twenty-seven brows occurring at Charity Hospital in New Or-

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leans the diagnosis of brow was made during the first stage in fourteen cases. Of these fourteen, eleven were delivered by cesarean section. Only two out of thirteen diagnosed in the second stage of labor were delivered by cesarean section. Hence, those with normally progressing labors were diagnosed late and were more prone to deliver vaginally.

By far the majority of authors agree that proper management consists of an adequate trial of labor with early resort to cesarean section if satisfactory progress is not made.

University of Arkansas Medical Center Series

The brow presentations occurring at the University of Arkansas Medical Center over the past twenty-four years have been reviewed. Special attention has been paid to age and parity, type of pelvis, length of labor, mode of delivery, infant weight, position of brow, time brow was recognized, duration of gestation, associated complications and condition of the infant. Where available from the record, some information concerning the patient's previous obstetrical history has been included.

RESULTS: Twenty cases of brow presentation were found in a total of 41,861 deliveries for an incidence of one in 2,093. The average maternal age was 27½ years with extremes of 19 and 42. Four were primigravidas and sixteen multiparas. Eight of the sixteen multiparas (80%) were para 5 or greater including the present pregnancy. Included in this group were two para 11 and one para 12. In several charts the type of pelvis was recorded as NF (Normal Female). For the purposes of this study, this was presumed to mean average gynecoid. With this qualification, there were sixteen gynecoid, two platypelloids and two "small" gynecoid types. Average length of labor was 13 hours with extremes of 1 hour and 23 minutes and 72 hours. Nine patients were delivered by cesarean section; conversion of brow to vertex was accomplished in five; there were two low forceps deliveries and four spontaneous vaginal deliveries.

The average fetal weight was 6 lbs., 9½ oz. with extremes of 2 lbs. and 10 lbs. and 6 oz. Of the infants delivered by cesarean section, the average weight was 7 lbs. with extremes of 4 lbs., 13 oz. and 10 lbs. 6 oz. The average fetal weight of the infants delivering vaginally was 6 lbs., 3 oz. with extremes of 2 lbs. and 9 lbs., 9½ oz.

The brow was anterior on thirteen occasions, transverse in two patients and position was not recorded in five instances. All spontaneous vaginal deliveries, both low forcep deliveries and four of the five conversion maneuvers occurred in the group of brows that were anterior. One of the transverse brows was converted with Kielland forceps and delivered vaginally. The other was delivered by cesarean section with the diagnosis of cephalopelvic disproportion. All cases in which the position was not recorded were delivered by cesarean section.

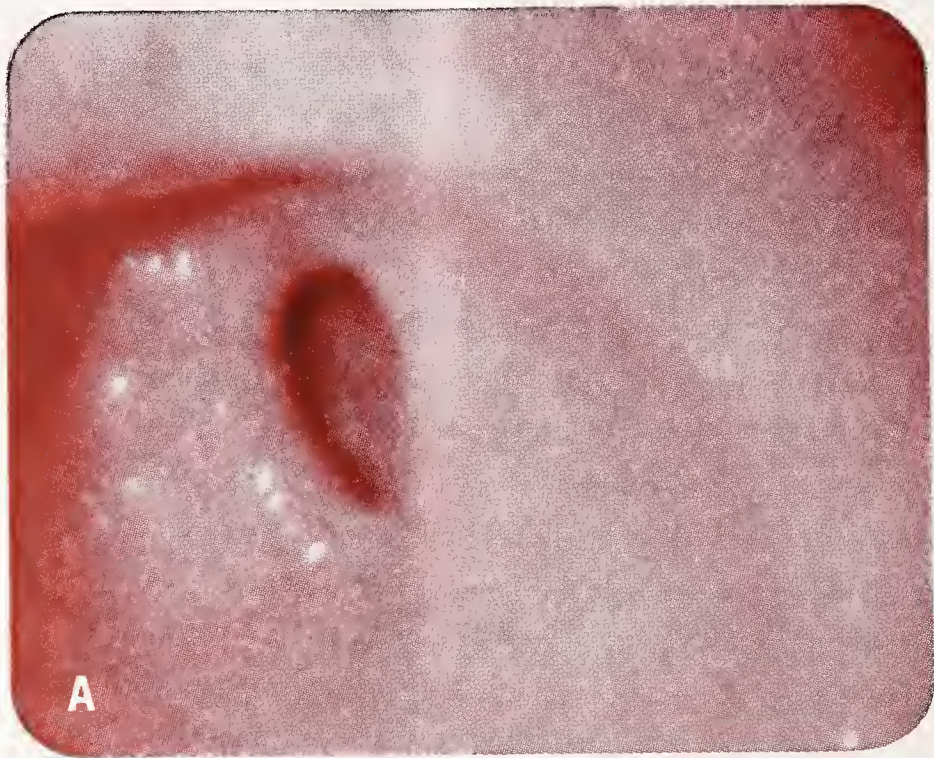
In one patient the brow was recognized prior to labor. The diagnosis was made during the first stage in ten patients and not until the second stage in nine cases. Average duration of gestation was 38½ weeks with extremes of 27 and 40 weeks. Fourteen of twenty patients were term.

Complications included two severe pre-eclampsics (one with congestive heart failure), three grand multiparas (greater than para 10), one prolonged labor, one premature ruptured membranes, one marginal previa, one partial abruptio placenta, one set of twins, one previous cesarean section for placenta previa, and one severe vulvar varicosities.

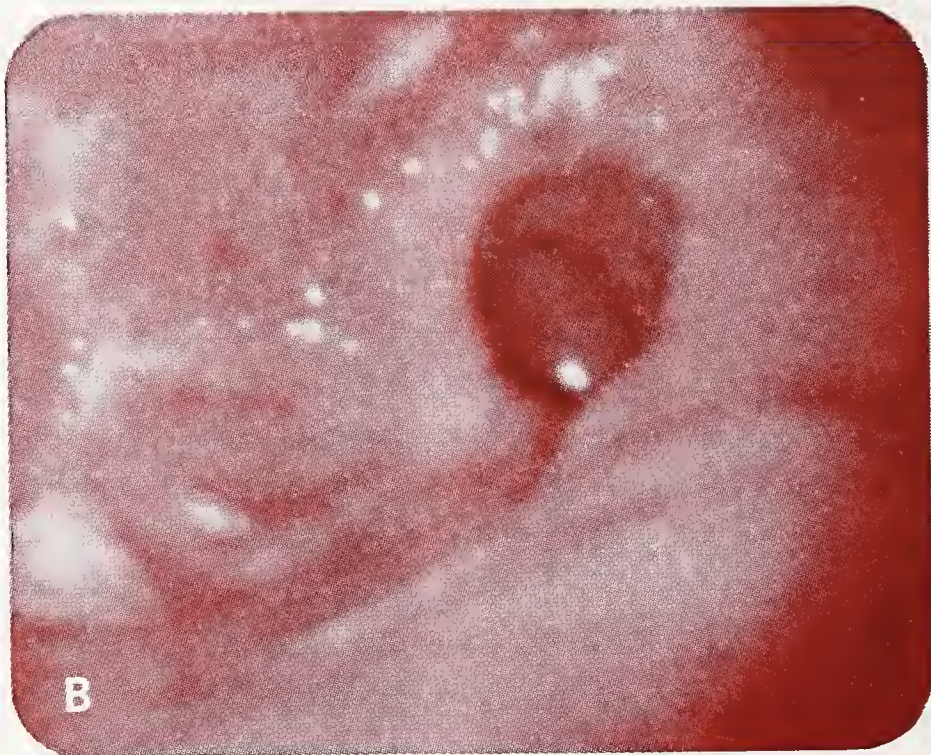
TABLE I
BROW PRESENTATION
PERINATAL MORTALITY
15%
Neonatal Deaths—3

No.	Weight	Condition		
		Age	at Birth	Cause of Death
1	2 lbs.	9 hrs.	Poor	Prematurity, Congenital Atelectasis, Hyaline Membrane Disease
2	3 lbs. 15 oz.	20 hrs.	Fair	Asphyxia Neonatorum
3	6 lbs. 11 oz.	12 hrs.	Fair	Intracranial Hemorrhage Congenital Atelectasis

PERINATAL MORTALITY: Fifteen babies were rated good, four were classified as fair and one poor. (No Apgar scores were recorded.) There were no stillborns. Three infants died neonatally for a perinatal mortality of 15%. (Insert Table I) Two of these three infants were rated fair and the other poor at birth. One infant weighed 2 lbs. and died in 9 hours. Autopsy revealed prematurity, congenital atelectasis and hyaline membrane disease. Another weighed 3 lbs., 15 oz. and died in 20 hours. Cause of death was given as asphyxia neonatorum. No autopsy was obtained. These two infants were delivered by spontaneous vaginal delivery after 4½ and

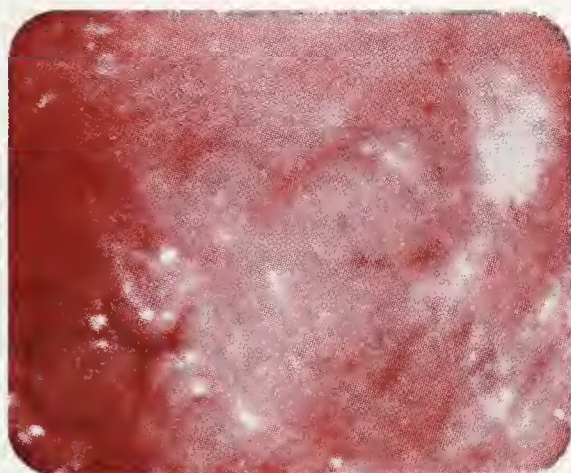


*Which Is Pyloroplasty with Vagotomy?
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Photographs—Harry Barowsky, M.D., Lawrence Greene, M.D., and Robert Bennett, M.D., from a Scientific Exhibit presented at the Annual Meeting of the American College of Gastroenterology, Bar Harbour, Florida, Oct. 24-27, 1965.

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Pro-Banthine, in minimal dosage, produces effects similar to pyloroplasty and vagotomy without the disadvantages of permanent post-vagotomy sequelae.

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SEARLE

Research in the Service of Medicine

9½ hours of labor respectively. The third infant weighed 6 lbs., 11 oz. and died in 12 hours. Autopsy revealed intracranial hemorrhage and congenital atelectasis. This infant had flexion of the head with Mengert clamp at station minus four and pitocin induction.

Discussion

Eighty percent of our patients were multiparas with 50% of the multiparas being para 5 or greater. This is a slightly higher incidence of multiparity than is found in most series and tends to substantiate the feeling that multiparity in some way predisposes to brow presentation. An average gynecoid pelvis (at least) was found in 80% of the patients with platypeloid and small gynecoid accounting for 10% each. Cephalopelvic disproportion was diagnosed in five patients or 25%. This is considerably less than the 33% incidence reported in the series of one hundred brows mentioned earlier.

A total of nine patients or 45% were delivered by cesarean section. This group includes all four of the primigravidas. Most series report a section rate of about 33%; however, some go as high as 50%. All authors seem to feel an adequate trial of labor should be allowed. The average length of labor in our series was 11½ hours and all patients who were sectioned were allowed some amount of labor with the exception of two patients. These two patients were sectioned prior to the onset of labor. One patient had a marginal previa and the diagnosis of brow was made on x-ray. The other patient was a severe pre-eclamptic who was sectioned at 36 weeks and a brow presentation found upon entering the uterus.

The contention that with normally progressing labors, the diagnosis of brow is made late and the patient is more prone to deliver vaginally is strongly substantiated by our series. All patients in whom the diagnosis was made in the second stage of labor delivered vaginally with one exception. This was a gravida 11, para 10 who was found to have a brow presentation at complete dilatation and station plus one. Her previous babies had weighed 7½ to 8 lbs. A conversion and rotation from brow to occiput was attempted with Kielland forceps and failed. Cesarean section was then performed and a 10 lbs., 6 oz. baby in fair condition was delivered. Total length of labor was 9 hours and 46 minutes.

In five, or 25% of the cases, conversion of presentation from brow to occiput with subsequent vaginal delivery was accomplished. A 9 lbs., 9½ oz. infant was converted from brow with Kielland forceps in a gravida 13, para 11. A 7 lbs., 3 oz. second twin was converted from brow with Simpson forceps. A 6 lbs., 15 oz. infant was manually disengaged, flexed, and rotated to occiput anterior in a gravida 6, para 4. A 6 lbs., 12 oz. baby was manually converted to vertex from brow in a gravida 3, para 2. All four babies were in good condition at delivery. In the fifth patient, scalp traction was utilized to flex the head at station minus four. The pelvis was recorded as platypeloid and there was a partial abruptio placenta. After 8 hours 50 minutes she was delivered of a 6 lbs., 11 oz. baby in fair condition that died in 12 hours with intracranial hemorrhage. Her largest previous baby weighed 7 lbs., 2 oz. Fetal mortality associated with conversion procedures in our series then was only 20% as compared to about 43% in some series.

However, it is significant that of the four good babies obtained via this method, one was a second twin and the other three were in patients with an extremely large pelvis. In each case, the conversion was to vertex rather than to face.

The average fetal weight was 6 lbs., 9½ oz. with six babies being premature (less than 5½ lbs.) and three weighing 8 lbs. or more. Some authors place emphasis on "large babies" or "small babies" as an etiological factor in brow presentation but certainly, the majority of babies in this series were within the normal range of birth weights. Fourteen patients were delivered at term, six delivered prematurely. Three of the latter group had cesarean section; one for marginal previa and brow; two for severe pre-eclampsia.

In reviewing the above figures then, it becomes apparent that in 45% of the cases, no etiological factor could be recognized. No series reports less than 33% idiopathic brows. Despite a wide choice of etiological factors available, all authors place the largest number of their cases in the group for which no cause was found.

This would seem to lend considerable strength to White's proposal that the deflexion is secondary to increased tone of the extensor muscles of the fetal neck. He cites personal observations in which this increased tone persisted two and three weeks neonatally. In keeping with this, he feels

very strongly that all brows are primary and that this would be proven if all fetuses were examined radiographically at the onset of labor. Three different groups of authors reporting routine antepartum abdominal x-ray for pelvimetry and visualization of the placenta, noted an incidental finding of face presentation in one in 131, one in 500, and 1 in 133 patients respectively. This is compared with an incidence of one in 529 reported by most authors. The significance of this would seem to apply to brow presentation also since undoubtedly, the same etiological processes are at work, the difference being only in the degree of deflexion.

The management of brows at the University Medical Center consists of a trial of labor with rapid intervention by cesarean section if progress ceases. Out of nine cesarean section babies, seven were rated good and two fair at birth and none died for a fetal mortality of zero. This is compared to a fetal mortality of 40% with cesarean section at Johns Hopkins. They feel that the high fetal mortality in their series was due to a delay in the decision to resort to cesarean section. Certainly, early intervention with cesarean section at the first hint of trouble is indicated.

Some authors decry conversion procedures. Posner et al., for instance, no longer employ conversion maneuvers and resort to cesarean section more readily than in their original article in 1943. A review of brows occurring at Johns Hopkins cites a fetal mortality of 43.8% with difficult vaginal delivery some of which included various conversion maneuvers. Of the five successful conversion maneuvers included in this series, four babies were rated good and a fifth died neonatally. It must be recognized that four of the conversions were extremely easy and atraumatic as described and occurred in patients with a large pelvis. It is conceivable that these patients may have delivered as a brow if allowed to labor but there can be no question that labor was greatly shortened by the maneuver. The fifth case in which the conversion attempt was made on a floating head simply demonstrated poor clinical judgment. The answer seems to lie somewhere between the two extremes. Our series indicates that there is a place for conversion attempts in the management of brows if the operator's zeal is tempered with intelligent restraint when difficulties are encountered.

Tancer and Rosanelli believe that a term infant in brow presentation will not deliver as such except in the rare instance of an enormous pelvis. Three of fourteen term infants (21%) in our series delivered as persistent brow presentation. The pelvis in each instance was classified as gynecoid. The only clue to the relative size of the pelvis lies in the fact that they had previously delivered term sized infants with labors as short as one to four hours.

Of the three infants who died neonatally, two were prematures that delivered spontaneously. These infants died in 9 and 20 hours respectively with death felt to be due to prematurity rather than events surrounding their delivery. The third infant died in 12 hours after a traumatic flexion of the unengaged head with a Mengert clamp and pitocin stimulation. A diagnosis of placental abruption undoubtedly prompted this management although fetal heart tones were good at the time. In addition, the pelvis was judged to be platypelloid. The remaining 17 infants were discharged as healthy newborns.

In summary then, the nine cesarean section deliveries were productive of nine healthy babies. Five successful conversion maneuvers resulted in vaginal delivery of four healthy babies, the fifth infant dying neonatally as a result of what must be considered an obstetrical error. Two low forcep and four spontaneous vaginal deliveries were productive of four healthy babies with the two neonatal deaths in this group being attributable to prematurity.

TABLE II
BROW PRESENTATION
SUMMARY

Mode of Delivery	No.	Neo-		Etiology
		Healthy natal	Death	
Cesarean Section	9	9	0	
Conversion Maneuvers	5	4	1	Obstetrical
Low Forceps	2	2	0	
Spontaneous Vaginal Del.	4	2	2	Prematurity

Conclusions

- (1) In the past 24 years at the University of Arkansas Medical Center there have been twenty cases of brow presentation out of a total of 41,861 deliveries for an incidence of one in 2,093.
- (2) Brow presentation is for the most part a complication of multiparous patients.
- (3) Proper management consists of an adequate trial of labor with early resort to cesarean

section if satisfactory progress is not made.

- (4) Attempts at conversion should be made in selected cases and are not accompanied by increased fetal mortality if intelligent restraint is used.
- (5) In one half of the cases no etiology can be found, thus tending to support White's conclusions that the etiology is fetal rather than maternal.

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Significant Bacteriuria in Relation to Late Vascular Complications of Diabetes

R. Vejlsgaard (Københavns Kommunchosp, III. Afdeling, Copenhagen) *Ugeskr Laeg* 127:1050-1054 (Aug 26) 1965

Quantitative bacterial culture from mid-stream urine specimens was carried out on an unselected nonhospitalized group of 269 diabetic patients. Accepting 10^5 colonies/ml of urine as a criterion for the existence of urinary infection, it was found that the incidence of urinary infection increases significantly in relation to the degree of progressive retinopathy, also with increasing heart disease, coronary sclerosis, and peripheral vascular disease. Urinary infection cannot, however, be correlated with duration of diabetes, with diabetic nephropathy, or neuropathy, although with regard to these last two disorders the criteria available in this study were inadequate. Both the severity and the control of diabetes as evaluated by insulin requirements do not appear to have any significance for the incidence of urinary infections. Discussing these findings and data from the literature, the author concludes that although it does not appear possible to correlate infection of the urinary tract with diabetes mellitus as such, diabetic vascular disease is a contributory factor in the development of urinary infection in diabetic patients.

Peculiar Thromboelastographic Changes in Patients With Leukemia: "Step Phenomenon"

L. A. Matviyenko (Leukemia Research Institute, Leningrad) *Vrach Delo* 47:12-15 (July) 1965

The "step phenomenon" consists of sudden step-like convergence of the plotted curves of the thromboelastogram after it reaches its full amplitude. It probably depends on sudden step-wise breaking off of the thrombus from the wall of the cuvette. This phenomenon is found most often in patients with chronic myeloid leukemia. In those with acute leukemia or chronic lymphadenosis it is found only occasionally. It is demonstrable in both plasma and blood. No direct relation was found between this phenomenon and the number of thrombocytes. It showed closest relationship to changes in clot retractility and to the thromboplastic function of the platelets. It seemed connected partly with the antiheparin function of the platelets and partly with the fibrinolytic activity of the blood. There is a definite connection between the appearance of this phenomenon and the course of the leukemic process. The step phenomenon was found especially during acute exacerbations of myeloid leukemia, seemingly in connection with other changes in blood coagulation mechanism or in participating chemical entities.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



Iatrogenic Acute Anemia: Primaquine Sensitivity

Benjamin L. Newbern, M.D.*

James H. Bearden, M.D.**

The purpose of this article is threefold: 1) To review and discuss some of the clinical, hematologic, metabolic, and pharmacologic aspects of a well known, but often undiagnosed, disease: primaquine sensitivity anemia. 2) To outline a simple, inexpensive, reliable laboratory test to confirm the diagnosis of primaquine sensitivity. 3) To present briefly, a study designed to determine the incidence of this trait in the Negro population of Arkansas.

The disease is so named because the initial studies, which led to better understanding of the pathogenesis of several forms of acquired hemolytic anemias, arose from the administration of this antimalarial compound.¹ In this country, it is known also as glucose-6-phosphate dehydrogenase deficiency and "Heinz body anemia." In other parts of the world, the disease has been associated with such maladies as "favism" and "Bagdad spring anemia."

Methemoglobin Reductase Test

This simple laboratory procedure was first introduced by Brewer.² The test is based on observations made by Lohr and by Dawson that the rate of methemoglobin reduction by sensitive red cells in the presence of methylene blue is slower than normal.^{3,4} A simplification of the original procedure was described by Tarlov, Brewer, Carson and Alving and was used by the authors of this

paper in their study. This simple procedure uses a visual end point and is performed as described in the appendix.

From February 1963 to September 1964 the authors screened 429 Negro patients admitted to the Little Rock Veterans Administration Hospital, The University of Arkansas Medical Center, and the Armed Forces Examination Station utilizing the methemoglobin reductase test. These patients were unselected and represented routine hospital admissions for a variety of diseases and complaints. The hematologic status of these patients was unknown to us prior to testing. Of the 429 Negro patients, 330 were male and 99 female. (table 1) The preponderance of male patients studied reflects the majority of male pa-

TABLE 1		
Patients	No. Positive	% Positive
Male 330	58	17.1
Female 99	11	11.1

tients admitted to Veterans Hospitals. Fifty-eight of the 330 Negro male patients were found to have positive tests; representing 17.1%. Eleven of the 99 Negro female patients were found to have positive tests; representing 11.1%. No attempt was made to quantitate the degree of deficiency in the female patients, although most were suspected to represent the heterozygous state. In several female patients, however, full expression was obvious. These figures are in accordance with the experiences of others.⁵

Discussion

Primaquine sensitivity is an acute acquired

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hemolytic disorder, affecting 7-13% of American Negro males and 1-2% of Negro females. In addition, intermediate degrees of hemolysis can be expected in 16-18% of females. The hemolysis is seen after the administration of many therapeutic agents, chemicals, and toxins to susceptible persons. The disease is an example of a genetically transmitted inborn error of metabolism that renders the erythrocyte susceptible to destruction as a result of an intrinsic abnormality. It has been concluded from genetic studies of affected persons and their families, that the defect is inherited and appears to be transmitted by an incompletely dominant gene carried on the X chromosome (sex-linkage). Thus, as would be expected, full expression of the defect occurs more commonly in males, because in the *hemizygous* state ($\bar{X}Y$), the mutant gene is not opposed by a normal allele (X). Full expression is not often seen in the female, because in the *homozygous* state ($\bar{X}\bar{X}$), a mutant gene would have to be inherited from both parents. The majority of affected females, therefore, are *heterozygous* ($\bar{X}X$), having inherited a mutant gene (\bar{X}) from one parent and a normal allele (X) from the other. It follows that the *heterozygous* female shows only partial expression of the defect.^{6,7,8} Susceptibility to this form of hemolysis is not limited to the Negro race, but is seen in Caucasians of Italian and Greek extraction, as well as in other darkly pigmented people of the globe. This discussion, unless otherwise stated, is concerned with the clinical phenotype, the fully expressed American Negro male.

Many commonly prescribed drugs used in modern clinical medicine today may precipitate hemolysis in sensitive individuals. This possibility should always be born in mind by physicians when an unexplained hemolytic process is seen in clinical practice. There are more than forty known drugs, therapeutic agents, vegetables, and animal poisons that are capable of causing hemolysis. (table 2) For a more complete list, the reader is referred to the References.^{5,9,10} It is important to realize the possibility strongly exists that there are numerous agents, which may cause hemolysis that have not yet been recognized. It is known that some systemic diseases (i.e. infectious processes, hepatitis) may enhance the hemolytic effect of these drugs. Most of the drugs found to produce hemolytic episodes in sensitive

TABLE II

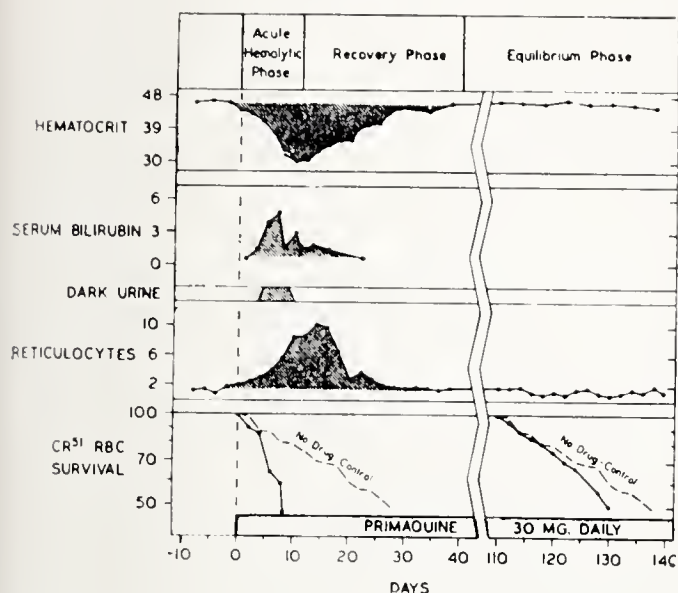
<i>Antimalarials</i>	<i>Antipyretics and Analgesics</i>
Primaquine	Acetylsalicylic acid (Aspirin)
Pamaquine	Acetanilid
Plasmoquine	Acetophenetidin (Phenacetin)
Quinacrine (Atabrine)	Aminopyrine (Pyramidon)
Quinine	Antipyrine
<i>Sulfonamides</i>	<i>Sulfones</i>
Sulfanilamide	Sulfoxone (Diasone)
Sulfacetamide (Sulamyd)	Thiazolsulfone (Promizole)
Sulfamethoxypridazine (Kynex, Midicel)	Diaminodiphenyl sulphone (DDS)
Salicylazosulfapyridine (Azulfidine)	<i>Other Agents</i>
Sulfisoxazole (Gantrisin)	Dimercaprol (BAL)
<i>Nitrofurans</i>	Naphthalene (moth balls)
Nitrofurantoin (Furadantin)	Probenecid (Benemid)
Furazolidone (Furoxane)	Vitamin K substitutes
Furaltadone (Altafur)	Mesantoin
Nitrofurazone (Furacin)	Benzedrine
	p-Aminosalicylic Acid (PAS)
	Chloramphenicol
	Fava Beans and other vegetables
	Snake Venoms
	Ascorbic acid

persons will not cause hemolysis of the erythrocytes of normal individuals when used in therapeutic doses. Compounds which can produce even moderate hemolysis in normal persons, may, however, cause profound hemolysis in primaquine sensitive subjects, i.e., the sulfones and acetanilid. In general, one can predict that drugs of this type will precipitate severe hemolysis in a susceptible individual and the physician should weigh this possibility against the therapeutic needs before prescribing these agents to his patients.

Several factors which influence the severity of hemolysis are known. The concentration of the drug (or its active degradation product) in the circulation appears to play an important role. Acetylsalicylic acid does not cause hemolysis in small doses, but when used in large doses may cause mild hemolysis. Nitrofurantoin (Furadantin), primaquine, and other drugs are only mildly hemolytic in therapeutic doses, but have been shown to cause severe hemolysis when dosages are doubled.¹¹ Likewise, any concurrent renal or liver disease which may affect drug excretion or metabolism, would influence drug concentration. A good example, is the use of antibiotics of the sulfonamide and nitrofuran groups, for urinary tract infections in patients likely to have impaired renal function. It has been suggested that the presence of febrile illness, such as bacterial and viral infections¹² and diabetic acidoses¹³ may enhance drug induced hemolysis. Physiological hypoglycemia of the newborn may enhance he-

molysis of sensitive erythrocytes even in the absence of drugs. On the contrary, any situation which provides a preponderance of young red cells in the circulation (such as blood loss, chronic hemolytic anemia) may protect sensitive erythrocytes from drug induced hemolysis.

Figure 1



Observed incidence of methemoglobin reductase positive persons.

Before discussion the biochemical and pathogenetic aspects of this inherited erythrocytic defect, it is necessary to study the clinical course of hemolysis that occur in sensitive individuals when treated with hemolytic drugs. The course of hemolysis has been divided into three arbitrary phases by Dern.¹⁴ (figure 1) This is based on investigational data obtained from the administration of 30 mg of primaquine base daily to known sensitive volunteers. The first phase, the *acute hemolytic phase*, lasts from 7-12 days. The hematocrit and hemoglobin values decrease on the 2nd or 3rd day, and reach their lowest levels by the 8th to the 12th day. In some sensitive persons, 30-50% of the red cell mass is destroyed in this period of time. Anemic symptoms are usually not present. In this phase, numerous Heinz bodies can be demonstrated on the peripheral blood smear when examined by supravital techniques. The serum bilirubin evenly divided between direct and indirect reacting, rises to 3-5 mg%; the urine may become dark and occasionally scleral icterus is seen. Hemolysis will cease, during the acute phase, if the drug is discontinued. The next phase, the *recovery phase*, takes place between the 10th and the 40th days. The reticu-

locyte count rises to a peak of 8-12%. The hemoglobin and hematocrit values climb slowly and reach normal levels by the fourth or fifth week, even if the drug is continued at 30 mg daily. The last phase, the *equilibrium phase*, begins when the hematocrit returns to normal and continues as long as primaquine is given. A mild, compensated hemolysis persists throughout this phase, but is not detectable clinically.

For similar studies, Beutler,¹⁵ using CR⁵¹ red cell survival times, demonstrated that sensitive erythrocytes 63-76 days old were destroyed by this dose of primaquine whereas younger cells, 8-12 days old, were not. Kellermeyer¹⁶ demonstrated that there is a progressive susceptibility to hemolysis as the cell ages. Thus, drug induced hemolysis is a self limited process, provided the dosage of drug is not increased. With increased drug dosages, there is a progressive destruction of younger erythrocytes until a point is reached at which time clinical hemolysis becomes evident again. It can be seen, in light of these facts, that once the drug is discontinued, an equally severe hemolysis can not be re-produced until a period of 4-6 months has elapsed. This is the time necessary for the erythrocyte population to return to susceptible age.

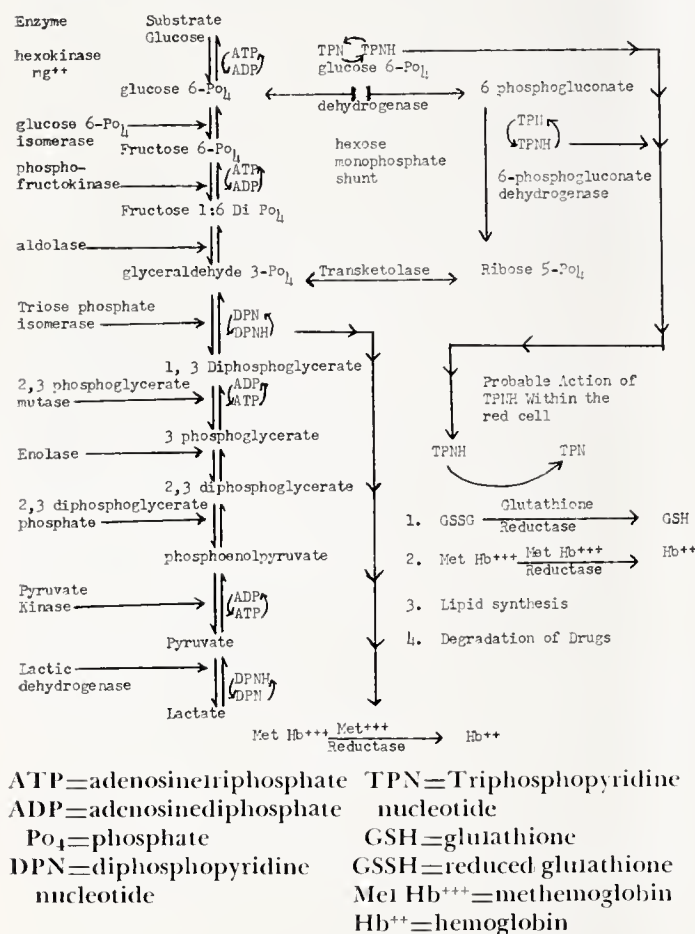
In discussing the hematologic characteristics of the sensitive erythrocyte it is important to stress that primaquine sensitivity can not be predicted prior to drug administration by routine laboratory procedures. Thus, as reported by Beutler,¹⁷ the reticulocyte count, hemoglobin, and hematocrit will be normal except during a drug induced hemolysis. Likewise, sensitivity can not be predicted by the microscope-morphology of the erythrocytes, the hemoglobin type, the alkali resistant hemoglobin, nor by the Coombs test. Further studies have revealed hematologic abnormalities. Brewer¹⁸ has demonstrated that the life span of sensitive erythrocytes is approximately 25% shorter than normal prior even to drug administration. This decreased life span is not sufficient to cause chronic anemia. Although not of practical clinical use yet, Tarlor⁵ has shown that the erythrocytes of sensitive individuals are more resistant to osmotic lysis than normal. This decreased osmotic fragility is probably a reflection of the younger mean age of the erythrocytes. The techniques to demonstrate this abnormality are precise and not suited for general hematologic

laboratories. Because younger erythrocytes trap more plasma than old, the hematocrit values have been shown to be falsely elevated when determined by the Wintrobe method.¹¹ The capillary microhematocrit, however, reveals values which are closer to the true hematocrit.

Much has been written concerning the biochemistry and mechanism of hemolysis in the "primaquine sensitive red cell." In the normal red cell the metabolism is such that it is able to carry enormous amounts of oxygen without oxidizing and destroying itself while carrying out this vital function. The normal red cell derives its energy mainly from catabolism of glucose via two interrelated metabolic pathways.⁵ (figure 2)

Figure II

Outline of Glucose Metabolism Within the Red Cell Embden-Meyerhof Snaerobic Pathway. Aerobic Pathway



The Embden-Meyerhof pathway accounts for approximately 90% of red cell catabolism of glucose. This is a non-oxidative (anaerobic) pathway and the products of this metabolic pathway are pyruvate, lactate, and high energy phosphate in the form of adenosine-triphosphate (ATP). Reduced diphosphopyridine Nucleotide (DPNH) is also formed via this metabolic pathway. The pentose

(or hexose) phosphate pathway (oxidative or aerobic) normally accounts for breakdown of approximately 10% of red cell glucose.²⁰ This pathway, as can be seen from examination of Figure 2, provides the only mechanism for producing reduced Triphosphopyridine Nucleotide (TPNH). This coenzyme appears to be the key in providing a reduced red cell environment. (e.g. reduction in presence of some of oxidant drugs and dyes, the degradation of drugs, glutathione reduction, and lipid synthesis.) Carson, et al.²¹ demonstrated that the major enzymatic defect in the "primaquine sensitive red cell" was a deficiency of glucose 6-phosphate dehydrogenase. It is because of the deficiency of this enzyme that the following things are noted within the involved red cells: 1) diminished TPNH and increased TPN;^{22, 23} 2) decreased oxygen consumption;²⁴ 3) diminished rate of methoglobin reduction;⁴ 4) diminished pentose formation;²⁵ 5) diminished rate of glucose utilization;⁵ 6) decreased rate of dye reduction;²⁶ 7) decreased reduced glutathione (GSH) content;²⁷ 8) increased susceptibility of glutathione (GSH) to oxidation;²⁸ 9) increased methemoglobinemia during nitrite administration (insufficient TPNH for methemoglobin reduction);⁵ 10) decreased lipid content.⁵ Decreased catalase and further fall during periods of drug induced hemolysis has also been noted, but the significance of this is not known.²⁹

It has been known for years that certain compounds accelerate the oxygen consumption of red cells.³⁰ The compounds having the greatest effect were noted to have oxidation potentials intermediate between that of oxygen and the most reactive cellular constituents such as TPNH, DPNH, etc. It is believed by most authorities in this field today that these compounds (table 1) have the ability to carry electrons (oxidize) from cellular compounds such as TPNH, DPNH, and GSH to molecular oxygen. In a red cell deficient in glucose 6-phosphate dehydrogenase, and hence, a lower ability to form TPNH, the addition of a compound that might cause oxidation of TPNH already formed might cause serious consequences. In fact the sequence of events seems to be: 1) oxidation of TPNH and DPNH; 2) oxidation of GSH (glutathione); 3) oxidation of hemoglobin and denaturation to eventually form the so-called "Heinz bodies." The hemolysis of the red cell probably results when the oxidation extends

to the protein sulfhydryl groups in the cell membrane.³¹

Summary

In summary: 1) The clinical picture of primaquine sensitive hemolytic anemia has been discussed and some of the more common offending drugs listed. 2) The known biochemical abnormalities of the glucose 6-phosphate dehydrogenase deficient red cell were discussed. 3) A simple laboratory procedure using a visual end point to detect "primaquine sensitive red cells" was outlined. 4) Attention was called to the frequency of this red cell enzyme deficiency in the State of Arkansas.

Acknowledgment

We are indebted to Dr. William F. Denny and Mr. William Van Wagner for their cooperation and assistance in this study.

Appendix

Reagents: A) 1.25 gm. sodium nitrite (Merck) and 5.0 gm. glucose are added to 100 ml. volumetric flask. The flask is then filled to mark with distilled water. B) 0.15 gm. trihydrated methylene blue is added to 1,000 ml. volumetric flask and flask filled to 1,000 ml. mark with distilled water. C) Glassware — screw-top glass vials or small test tubes are good. Plastic tubes should not be used.

Tube No. 1. Sample tube—pipette precisely 0.1 ml. of the sodium nitrite-glucose solution and 0.1 ml. of the methylene blue solution into this tube. Tube No. 2: Positive reference tube pipette 0.1 ml. of the sodium nitrite-glucose solution into this tube (no methylene blue is added). Tube No. 3: Normal reference tube, no reagents are added to this tube. The test may be performed by pipetting blood directly into the tubes as described above, or solutions in tubes 1, and 2 may be allowed to dry at room temperature and blood added to the dried reagents. If tubes 1 and 2 are allowed to dry they should be stoppered and stored at room temperature.

Blood

Freshly drawn heparinized blood may be used immediately for test. If not used immediately the blood should be kept under one of the following conditions at 4° C. If the blood freezes, all tubes will be positive.

a) up to 8 hours, heparinized blood with no other additions

b) up to 36 hours, blood stored in ACD solution

c) up to 14 days, blood stored in ACD solution to which inosine (2.45 gm. inosine in 100 ml. ACD solution) has been added

If the hematocrit is less than approximately 30% enough plasma should be removed to bring packed cell volume to approximately 40%.

Procedure

Add 2.0 ml. of blood to be tested to the sample tube. 2.0 ml. of blood (either normal, positive, or unknown) to bath positive and normal reference tubes. Only one positive and one normal reference tubes are needed for each series of tests. The tubes are mixed by inversion and then incubated unstoppered at 37° C for 3 hours without shaking. After incubation 0.1 ml. of the incubated blood—or blood reagent material is pipetted into 10 ml. of water. From 2 to 10 minutes later the color is compared to the normal and positive reference tube. The primaquine-sensitive (full expression) cells give a full brown color like the positive tube will have. The normal red cells give a clear red color, as will be seen in the normal reference tube. Intermediate females will give a color varying between red and brown.

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Erythropoietic Protoporphyrria

P. Lynch (1466 Lowry Medical Arts Bldg, St. Paul)
and L. J. Miedler *Arch Derm* 92:351 (Oct) 1965

Erythropoietic protoporphyria is a relatively new example of a disturbance in porphyrin metabolism; it is primarily a disease of photosensitivity. A family in which four cases of this disease were found is presented, and the clinical and laboratory characteristics of previously reported cases are summarized. Hallmarks of the disease are its onset early in life, dominant hereditary tendency, appearance of lesions following exposure to ultraviolet light of the longer wavelengths (through window glass and during the winter), and its relatively benign course. Symptoms and signs appear immediately following sun exposure and consist of itching or mild pain and subsequent edema of the light-exposed areas. Occasionally, eczematous lesions are observed. Elevation of red blood count protoporphyrin must be shown in order to prove the diagnosis.

Roentgen Therapy in Senile Epistaxis

G. Salomon and A. Buch-Rasmussen (Kommune-hospitalet, Copenhagen) *Nord Med* 74:891-893 (Sept 9) 1965

Forty-nine geriatric patients with severe epistaxis were given roentgen irradiation; a total dose of 3,000 r was applied to two fields over the external part of the nose. The total dose was subdivided into doses of 200 r, given on 15 successive days with 200 kv, 10 ma, 0.5 mm of copper filter, and a focus-skin distance of 400 mm. Of the 49 patients 40 (or 80%) had no recurrences, as compared with 44% in a series of patients not given such treatment. The roentgen irradiation had no effect in 12% of patients. The poorest results were obtained in women with severe hypertension. The side reactions to roentgen therapy were transient and insignificant. The authors recommend long-term roentgen therapy for geriatric patients with severe epistaxis, after hemostasis has first been achieved by other means.



ELECTROCARDIOGRAM

OF THE MONTH

AGE: 53 SEX: F BUILD: Stocky BLOOD PRESSURE: 170/100

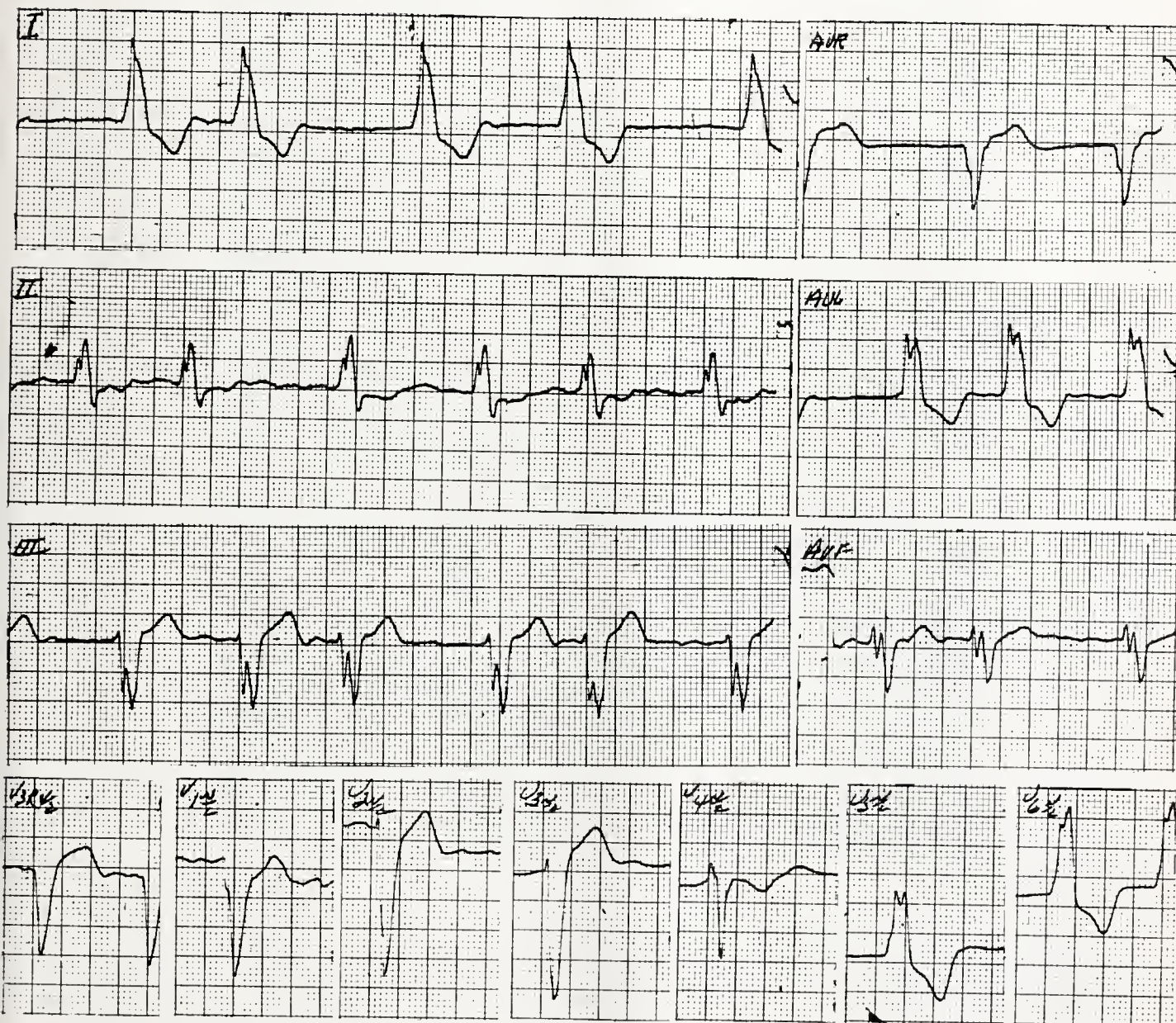
CARDIAC DIAGNOSIS: Hypertensive Cardiovascular Disease

OTHER DIAGNOSES: None

MEDICATION: Digitalis, amount not stated; diuril

HISTORY: Anginal syndrome, duration not known

ANSWER ON PAGE 391



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 391



A00-40-63

62-year-old female

HISTORY: The patient had pain in the joints of the arms and legs; the wrists and fingers had been deformed for several years.



Hepatitis

During World War II, viral hepatitis was the most important infectious disease among military personnel of the United States. Because of this fact, special research efforts were made which included experiments with human volunteers. These investigations defined two distinct etiologic entities which cause a similar clinical picture: agents of infectious hepatitis and serum hepatitis.

Despite much research in the intervening years, our understanding of infectious and serum hepatitis has advanced relatively little beyond that of the early 1940's. There are still no clinical or pathological criteria for differentiating the two diseases, and there are no laboratory methods for specifically diagnosing either of them. Classification, therefore, rests upon epidemiological considerations. In infectious hepatitis, the virus is usually present in the feces from 2 weeks prior to onset until 1 to 2 weeks after onset. Transmission is from person-to-person, but may also occur through a common vehicle such as contaminated water or food. The incubation period is from 14 to 45 days. The only known reservoir is man, although outbreaks have been noted in persons exposed to chimpanzees and other nonhuman primates. In serum hepatitis, the virus has been found only in the blood, and it is transmitted only by the parenteral route. Most recognized cases are due to transfusions of blood, pooled irradiated plasma, and fibrinogen. The interval from transfusion to onset has been thought to vary from 50 to 160 days. It is now recognized, however, that incubation periods shorter than 50 days occur in one-third of the cases.

As a result of the improved understanding of viral hepatitis during World War II, the disease was increasingly recognized as a problem in the general population of the United States in the late 1940's and early 1950's. For this reason, viral hep-

atitis was placed on the list of reportable diseases in Arkansas in 1951. This was one year before viral hepatitis became generally reportable in the United States. At that time it was decided to use a single category of "viral hepatitis" instead of asking that infectious hepatitis and serum hepatitis be reported separately. This decision was made because of the difficulties in distinguishing between these two diseases from the clinical and laboratory point of view.

TABLE 1
Viral Hepatitis
Number of Reported Cases and Incidence Rates
in Arkansas and United States, 1952-1965

	ARKANSAS		UNITED STATES	
	No. of Cases	Rate*	No. of Cases	Rate*
1952	141	7.5	17,428	11.8
1953	301	16.3	33,700	21.7
1954	275	15.6	50,093	31.5
1955	222	12.6	31,961	19.7
1956	150	8.6	19,254	11.6
1957	82	4.6	14,922	8.9
1958	105	5.9	16,294	9.5
1959	83	4.7	23,574	13.4
1960	263	14.8	41,053	23.2
1961	1,010	56.0	72,733	40.9
1962	568	31.2	53,256	29.5
1963	312	16.4	42,891	22.7
1964	298	15.4	38,367	20.0
1965	358**	18.3**	33,655**	17.3**

*Number per 100,000 population, based on U.S. Census mid-year population.

**Adjusted to annual basis.

During the years since 1952, both Arkansas and the United States have experienced two epidemic waves of viral hepatitis. The number of cases and the rate per 100,000 population for both Arkansas and the United States during that interval are shown in Table 1. The rate in Arkansas during the early 1950's was less than that in the country as a whole. During the most recent epidemic wave, however, the rate in Arkansas exceed that in the United States generally. Thus far in 1965,

the number of reported cases are already more than that for 1964. This may indicate that a new epidemic cycle is beginning. Such a trend in Arkansas would probably indicate that the incidence will soon increase in the rest of the country as well.

For each county in Arkansas, the accompanying map gives the average annual rate during the years 1951 through 1964. Five counties experienced an average incidence in excess of 3 cases per 10,000 population each year: Cleburne, Cleveland, Poinsett, Van Buren, and Yell. Thirty counties had an attack rate of less than one case per 10,000 population per year. No county, however, failed to have at least a few cases of the disease during this period. No particular factors tending to promote a high or low incidence on a county or regional basis could be identified in review of these data.

TABLE 2
Age Distribution of Viral Hepatitis in Arkansas
Average annual number of reported cases and age-specific incidence rates
Arkansas 1957-1961

Age	Average No. of cases	Average Rate*
0- 4	15	7.7
5- 9	91	48.4
10-14	72	38.5
15-19	37	24.5
20-24	27	27.0
25-34	34	17.8
35-44	15	7.1
45 or over	16	2.8

*Number of cases per 100,000 population per year, based on 1960 U.S. Census enumeration.

The age distribution of viral hepatitis in Arkansas is indicated in Table 2. This gives the average number of cases per year for the several age groups and the rate per 100,000 population per year. As in many parts of the United States, the highest rate was experienced by school children. The attack rate among younger adults, however, is by no means negligible. The number of susceptibles appears to remain relatively high until age 45 is reached. Review of the sex distribution of reported cases indicates no significant differences in incidence during this period.

These data concerning reported cases have been very helpful in providing information about epidemic occurrences of viral hepatitis, long-term trends, and the populations most severely affected. It has seemed quite important, however, to try to obtain some idea about the frequencies of infectious and serum hepatitis. We know that serum

hepatitis is a much more serious disease, with a high case fatality rate and a higher frequency of subsequent chronic hepatitis and cirrhosis. Since 1961, therefore, Arkansas, as well as a number of other states in cooperation with the Public Health Service's Communicable Disease Center has collected epidemiological data concerning each reported case. Since infectious and serum hepatitis can both be transmitted in a number of ways, this information has been helpful in defining Arkansas' particular problem with this disease.

TABLE 3
Hepatitis Surveillance in Arkansas
History of Contact With a Previous Case
July 1963 - June 1964

Age Group	No. of Cases	Per Cent with History of Contact		
		Household	Other	Total
0- 9	154	13.6%	24.7%	38.3%
10-19	224	8.6%	26.1%	34.7%
20-39	182	8.4%	16.2%	24.6%
40 and Older	77	5.2%	2.6%	7.8%
Total	637	9.5%	20.5%	30.0%

Table 3 shows the proportion of cases in Arkansas giving a history of contact with a previous case of hepatitis during the 2 months prior to onset of illness. This indicates that at least 30 per cent of all cases can be easily attributed to person-to-person transmission. Since many persons with infectious hepatitis have anicteric illnesses or no symptoms at all, an even larger percentage is undoubtedly the result of person-to-person spread. It is of interest to observe that contact outside of the household was responsible for twice as many infections as household contacts. This is undoubtedly due to the effectiveness of gamma globulin given to remaining persons in the household as soon as the first case is recognized. It is somewhat disturbing, however, to note that household contact was found to be twice as frequent as contact outside of the household among those 40 years of age and over. This may be due to the tendency of some physicians to withhold globulin from older persons when there is known household exposure. Although they are less often susceptible (as shown in Table 2), there are still enough persons without immunity by age 40 to make globulin administration worthwhile.

Table 3 also indicates that contact both within and outside of the household accounts for fewer cases among those 40 years of age and over than in younger persons. This has been generally true

in the United States and is a cause for concern. It has been suggested that serum hepatitis, rather than infectious hepatitis, causes most of the cases in this age group. It has accordingly been suspected that medical, dental, and vaccination procedures may be responsible for producing disease in this group. For this reason the surveillance data have been reviewed with careful attention to exposure to possible parenteral sources of infection.

TABLE 4

Hepatitis Surveillance in Arkansas

History of Transfusions and Parenteral Inoculations

July 1963 - June 1965

Age Group	Total Cases	History of Transfusions		History of Parenteral Inoculations	
		Cases	Per Cent	Cases	Per Cent
0- 9	154	-	0.0%	26	16.9%
10-19	224	2	0.9%	33	14.8%
20-39	182	4	2.2%	46	25.2%
40 and Older	77	15	19.5%	16	21.2%
All Ages	637	21	3.3%	121	19.0%

Table 4 shows the per cent of cases in each age group receiving transfusions of blood and blood products during the 6 months before onset. During the 2-year interval, there were 21 persons who developed hepatitis after receiving blood. This accounted for 3.3 per cent of all cases. It may also be seen that they make up 19.5 per cent in those 40 years and over, and thus are an important source of infection in this group.

Table 4 also shows the percentage of persons in each age group who experienced injections, vaccinations, intradermal skin tests, blood tests, and dental procedures during the 6 months prior to onset. While the frequency of such exposures was higher among adults than children, they were no more frequent among older (40 years of age and over) than younger adults (20 through 39 years). In contrast to transfusions, therefore, they do not seem to have been an important source of infection for adults during this period.

Control of Viral Hepatitis

Isolation or quarantine of patients is generally ineffective in limiting the spread of infectious hepatitis. At least in part this is due to the fact that the virus is excreted in the feces for as long as 2 weeks before onset of illness. In addition, unrecognized anicteric and asymptomatic cases also excrete virus. The promotion of general personal hygiene is the only approach to limiting spread among persons outside of a household in

which a case has been recognized.

Items such as food and water can become contaminated and serve as a vehicle of infection. This directs attention to the proper maintenance of water distribution and sewerage systems. The rules of personal hygiene should be stressed in food-handling occupations.

Immune globulin is widely used as a preventive measure among persons who have had close personal contact with a case of infectious hepatitis. Immune globulin probably does not prevent infection from occurring; however, if given during the incubation period, it will suppress the symptoms of the disease. Administration of immune globulin is usually limited to household or other intimate contacts of a case of infectious hepatitis, and the usual dose is 0.01 ml. per pound of body weight.

There is no definite evidence at the present time that immune globulin is of any value in the prevention of serum hepatitis. Other measures, however, are available. Since serum hepatitis is so frequently associated with the administration of blood, pooled plasma, and fibrinogen, the necessity for administration of any of these materials should be carefully considered. In addition, the use of disposable syringes and needles makes concern about sterilization of these instruments unnecessary, provided they are thrown away after they are used. For nondisposable equipment, autoclaving at 15 pounds of pressure or boiling in water for 30 minutes is required.

New Reporting Procedure

Because of the importance of serum hepatitis associated with transfusions, Arkansas as well as other states will make infectious hepatitis and serum hepatitis separately reportable beginning January 1, 1966. Many physicians have already been following this practice. Thus, of the 21 cases in persons receiving blood and blood products, 14 were reported to the State Board of Health as serum hepatitis. Reporting of all such cases as serum hepatitis will now be encouraged.

The particular importance of identifying cases of serum hepatitis is easily illustrated. Some lots of commercially available plasma and fibrinogen still appear to be icterogenic according to information received at the Communicable Disease Center through surveillance programs such as that in Arkansas. One lot of icterogenic plasma was identified and the remaining units were with-

drawn from hospital shelves (1). It is estimated that this prevented 10 cases of hepatitis and 2 deaths. It is hoped that such a procedure can become routine, since there is still no way of testing for the virus of serum hepatitis in blood products. This illustration also points out the importance of recording the manufacturer and lot numbers of all plasma and fibrinogen administered, so that this information will be readily available if the patient subsequently develops serum hepatitis.

The Red Cross and many other blood collec-

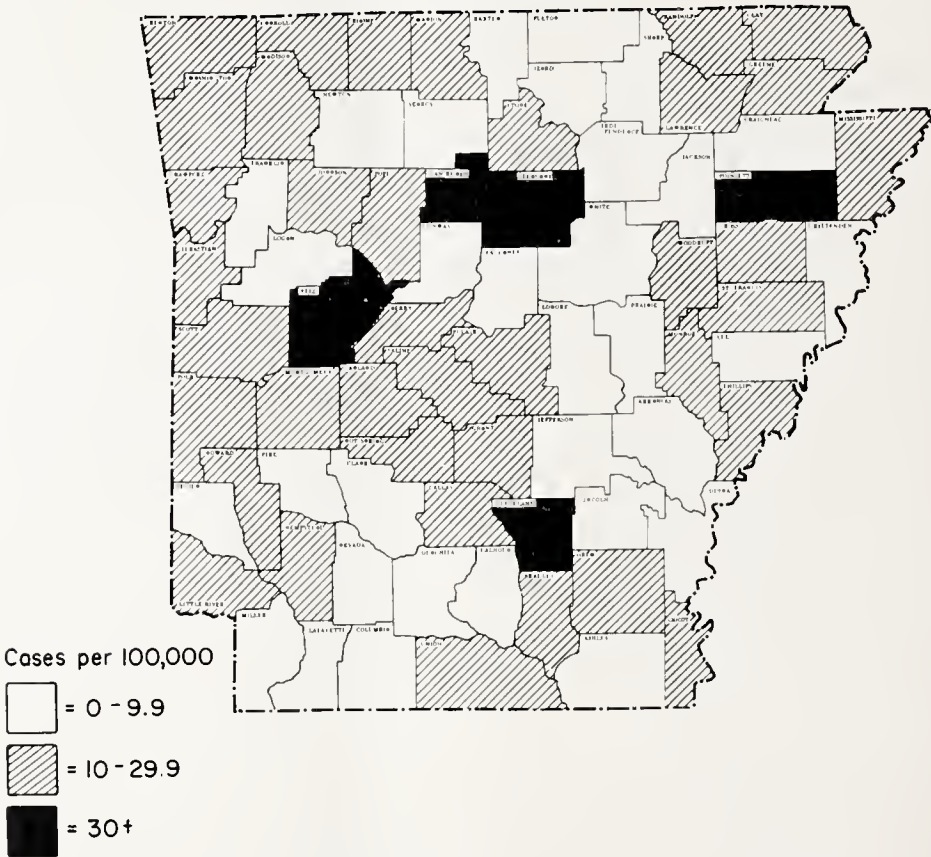
tion agencies now exclude from subsequent donations (except for fractionation) persons contributing blood to an individual who develops hepatitis after an appropriate incubation period. More systematic compiling of such data about serum hepatitis cases will be of help in this way as well.

The cooperation of all physicians in Arkansas is requested.

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AVERAGE ANNUAL NUMBER OF REPORTED CASES OF
VIRAL HEPATITIS PER 100,000 POPULATION
ARKANSAS 1951-1964





EDITORIAL

Renal Glycosuria

Alfred Kahn, Jr., M.D.

Renal diabetes has been a source of misunderstanding in both lay and medical circles. It is often confused by the layman with diabetes mellitus as sugar carries an important and ominous implication. It is a real source of confusion in insurance underwriting when routine blood sugars are not performed. Statistically, it is of interest that a greater number of patients diagnosed as renal glycosuria ultimately have diabetes mellitus than a similar number of normal controls; this statistic is probably due to the erroneous diagnosis of renal diabetes.

Monasterio, Oliver, Muiesan, Pardelli, Marinuzzi and McDowell have recently reviewed renal glycosuria in *The American Journal of Medicine* (Volume 37, page 44, July 1964) in an article entitled "Renal Diabetes as a Congenital Tubular Dysplasia". According to the authors, this disorder is probably conveyed as a dominant Mendelian characteristic. It is said to be completely harmless and non-progressive. It is comparatively rare and represents only about one case per 500 cases of glycosuria.

Monasterio attributes the cause to a lowered renal threshold for glucose. These patients show a normal glomerular filtration rate. The maximal tubular reabsorptive capacity for glucose varies from almost normal to very low; there is a range of TMG rather than two distinct groups as some have postulated. As the TMG falls the glycosuria increases. The senior author here has found anatomic changes in patients with renal glycosuria; it is characterized by flattening of the

tubular epithelium. However, this was not confirmed by other authors and Monasterio, et al in this publication present additional evidences of anatomic changes.

They have presented dimensions of glomeruli and proximal convoluted tubules on normal patients and patients with renal glycosuria. The dimensions were about the same in one case but in another the tubular length was decreased; in this latter case the glomerular surface was also reduced so that "glomerulo-tubular" balance was sustained.

The kidneys of two patients were subjected to microdissection. Approximately 50 nephrons were dissected. Monasterio described epithelial lesions in the cases of renal glycosuria including vacuolization, abnormal staining material, and dissolution of some of the fine intracellular elements; he feels that the process may be active or quiescent; the quiescent appearance is a low epithelial lining of the tubules with a widened lumen. The areas of damaged epithelium correlate well with the areas of glucose absorption, and it is felt that there is a cause and effect relationship. It is speculated that similar lesions could be present in other types of tubular dysplasia as Fanconi's Syndrome, etc.

The authors feel that needle biopsy of the kidney cannot get an adequate sampling of nephrons to justifiably confirm or negate the results of these microdissections.

This interesting and provocative article, if confirmed, is another step in relating morphology and biochemistry.

MEDICINE IN THE



Memorial and Honor Fund

The following gifts have been received by the Memorial and Honor Fund of the University of Arkansas Medical Center:

In memory of Dr. John Nye Compton

Dr. C. Lewis Hyatt
Monticello, Arkansas

In memory of Dr. Byron Z. Binns
Dr. and Mrs. Thomas J. Raney
Glenn Raney

Dr. Van C. Binns
Monticello, Arkansas

H.R. 2. AND YOU

On February 1, 1966, a new federal law on Amphetamine and Barbiturate drugs (stimulant and depressant) went into effect. This means:

—That a written prescription by you is required for this type of medication—however, (Arkansas law) telephone prescriptions are permitted providing you furnish the pharmacist a signed prescription within 72 hours.

—Prescriptions for stimulant or depressant drugs may not be refilled more than 5 times or for longer than 6 months, except by your authorization—a new or telephone prescription.

—Dispensing physicians are **REQUIRED** to maintain detailed records of the receipt and disposition of all depressant and stimulant drugs; make a complete inventory of all stimulant and depressant drugs on hand February 1, 1966; and permit FDA inspectors to have access to stimulant and depressant drug records and to copy them.

HOSPITALS ELECT STAFF OFFICERS

North Little Rock Memorial

Dr. Joe Stanley was elected chief of staff; Dr. Amail Chudy, vice chief; Dr. Frank E. Morgan, chief elect; Dr. Ken Lilly, secretary; Dr. Marion M. Church, chief of obstetrics and gynecology; Dr. Bob Gosser, chief of pediatrics and medicine; Dr. Frank Ludwig, chief of surgery, and Dr. Bruce Schratz, chief of general practice.

Arkansas Baptist Medical Center

Dr. J. O. Porter is the new chief of staff; Dr. Grimsley Graham, chief of staff-elect; Dr. Carl Wenger, vice chief, and Dr. Ted Bailey, secretary.

St. Bernards Hospital, Jonesboro

Dr. Paul Stroud was named chief of staff; Dr. George E. Mitchell, vice chief of staff, and Dr. Herman Alston, secretary-treasurer.

Baxter General Hospital, Mountain Home

Dr. Max Cheney was elected the hospital's chief of staff and Dr. Ben Saltzman was elected secretary of the staff.

National Institutes of Health Training Grants 1958-1965

Federal grants made by the National Institutes of Health (NIH) presently provide an important source of financial support for programs conducted by the U.S. schools of medicine to enhance undergraduate training and to provide graduate research training.

Undergraduate training grants provide support for instructional programs designed to enrich the medical student's knowledge of a specific disease entity or in a particular medical specialty or discipline. These grants are awarded by the National Heart Institute to promote undergraduate instruction in cardiovascular disease, by the National Cancer Institute to promote the teaching of oncology, and by the National Institute of Mental Health to promote the teaching of psychiatry. Grants for these programs provide for an annual lump sum payment to the medical school to finance whatever type of program the school feels will best serve the objective of improving the instructional program in the specific area for which funds have been earmarked.

Research training grants are made to individuals to enable them to participate in the graduate training program conducted by the medical school to provide training in research techniques

at medical center laboratories.

When they were first made in 1948, federal grants in support of training programs totaled 1.6 million dollars. Annual increases have raised the dollar value to 87.6 million dollars in 1964. In the initial year of federal support for medical school training programs, the major share was devoted to undergraduate training which accounted for 97 per cent of the total training grants awarded by NIH for the year and research training received a mere 48 thousand dollars. The burgeoning research impetus of the ensuing years has resulted in the dominance of research training grants, which in 1964 accounted for 87 per cent of the NIH training awards to medical schools.

THE MONTH IN WASHINGTON

Washington, D.C.—The Public Health Service has expanded its “pap” test program with a goal of providing cervical cancer tests for most women who enter hospitals and many of those who see physicians for any reason.

A total of \$6 million has been allotted for the expanded nationwide campaign.

Grants will be made to hospitals, medical schools, state and local health departments and

non-government health groups for training of technicians, post-residency training of physicians, purchase of laboratory equipment, examination of hospital outpatients and other such expenditures.

Since last March, the American Academy of General Practice has been implementing for the PHS an office cancer detection program. A PHS spokesman termed the program “most effective”, although not costly.

The PHS said it expects to achieve its goal in hospital tests within the next five years, with the number of hospitals providing this service to all adult women patients increasing each year during this period.

Hospitals providing care for the poor and medically indigent will receive first consideration in the awarding of grants. These patients have not been tested usually for cervical cancer, the PHS said. PHS Surgeon General William H. Stewart said the new hospital-based screening program reaching high-risk, low-socio-economic groups offered “a truly effective” means of fighting cancer through the “pap” test for early detection.

Although the “pap” test was developed more than 20 years ago, only 20 per cent of the nation's

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: App. 65 RHYTHM: Atrial fibrillation
PR: —sec. QRS: .17 sec. QT: —sec.

ABNORMAL: Absent P waves, replaced by F waves with totally irregular R-R intervals. Prolonged QRS with delay on the left.

COMMENT: This combination of atrial fibrillation with Left Bundle Branch Block is frequently found in patients with ischemic heart disease and is due to previous myocardial infarction.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Rheumatoid arthritis.

X-RAY FINDINGS: The bones are extremely osteoporotic. The femoral heads and acetabular fossae demonstrate marked bone destruction with protrusion of the remnants of the femoral heads and acetabula through the pelvic bone into the pelvic cavity.

62 million adult women had received the test last year, the PHS said.

The report of the President's Commission on Heart Disease, Cancer, and Stroke proposed a national cervical-cancer detection program as the next logical step to expand the limited program previously carried out by the PHS' Cancer Control Program. The clinical training programs for cancer control will have \$6 million in funds for the next 12 months, double the amount previously available. The grant-aided programs will be carried out by medical schools, hospitals, and such health groups as the American Cancer Society, the American Academy of General Practice, and state and local health departments.

After President Johnson named the National Advisory Council on Regional Medical Programs to advise the government on programs authorized by the Heart Disease, Cancer and Stroke law, Dr. James Z. Appel, AMA President, expressed regret that "the AMA was not asked to submit any nominations to this important body."

"Frankly, we are disturbed that the PHS has taken this action in view of our known interest in this Act and the inclusion before its enactment of the 20 amendments we had proposed," Appel said. "You may remember that one of the amendments incorporated into the final bill was our suggestion that the Advisory Council have final authority in approving or disapproving grant requests rather than only advisory authority as initially provided."

Nonetheless, Appel told the AMA House of Delegates in Philadelphia:

"If we provide effective leadership, and if the PHS cooperates, it may be that this law will permit the development of programs which will benefit the public and be acceptable to the profession. I cannot urge you strongly enough, therefore, to take steps now through appropriate state and local society committees to meet with medical school deans, state health department directors, teaching hospital administrators, and department heads in an effort to establish jointly a series of programs under the Act that would be wholly beneficial."

Named to the Advisory Council:

Dr. Michael E. DeBakey, Houston, who headed the commission that recommended the program; Dr. John Willis Hurst, Atlanta, the President's heart specialist; Dr. George E. Moore, Buffalo,

N.Y.; Dr. Clark M. Millikan, Mayo Clinic, Rochester, Minn.; Dr. Cornelius M. Traeger, New York, N.Y.; Dr. Leonidas H. Better, Chicago; Mary I. Bunting, President of Radcliffe College; Gordon Cumming, Sacramento, Calif.; Dr. Bruce Everist, Ruston, La.; Dr. William Peebles, Maryland Health Commissioner; Dr. Robert J. Slater, Burlington, Vt.; and Dr. James T. Howell, Detroit.

Surgeon General Stewart will be chairman.

* * *

Clinical testing of the experimental drug DMSO has been discontinued by voluntary agreement of the drug sponsors and the Food and Drug Administration. The action was prompted by reports of adverse effects on the eyes of laboratory animals. About 1,000 investigators had been testing the drug on thousands of human patients. Both the American Medical Association and FDA previously had warned that attempted self-medication with the material was dangerous.

DMSO is produced as an industrial solvent as well as grades for medical research purposes.

* * *

A special advisory committee of non-government medical experts is conducting a comprehensive review of side-effects of birth control pills.

The Advisory Committee on Obstetrics and Gynecology was appointed in November by the Food and Drug Administration because of reports that women who had taken oral contraceptive pills had suffered thromboembolic phenomena including strokes, thrombophlebitis and pulmonary embolism, and various eye and vision manifestations. An article in the AMA's Archives of Ophthalmology reported 69 cases of eye ailments, migraine and strokes among women who had taken the pills.

As an interim measure, the FDA directed manufacturers of the pills to put on package labels two warnings—1) use should be stopped if eye problems occur, and 2) women who have had strokes should not take them.

It is estimated that more than four million American women have been taking birth control pills which are manufactured by seven U.S. drug firms.

At its first meeting the seven members of the special committee—all medical school gynecologists and obstetricians—concluded that there was no immediate need for immediate action on the

reports of adverse experience with oral contraceptive pills. The committee believed that "final recommendations . . . can safely await the conclusion of its deliberations."

Two more Committee meetings were scheduled, in January and March. Dr. Joseph F. Sadusk, Jr., FDA Medical Director, said the Committee probably would issue its final report following the March meeting.

The FDA put on computer tape and turned over to the Committee for evaluation all of the clinical reports it had received on suspected adverse reactions from oral contraceptive drugs. The FDA pointed out that it had "emphasized previously that these are naturally occurring conditions in some women which have been noted as far back as medical experience extends."

In a non-related action, a thirteen-member panel, one of 30 making up the White House Conference on International Cooperation, proposed that the United States make \$100 million available over the next three years to help foreign governments carry out family planning programs. The panel also urged that the Federal government set an international example by cooperating with state and local agencies to make birth control information services readily available in this country. Richard N. Gardner, professor of law at Columbia University, headed the panel.

DM

years is made. Realizing the difficulty in obtaining such specimens locally it is hoped that such a state wide appeal might result in obtaining needed specimens to carry out this project. As the project will continue for approximately a year it is hoped this notice might be kept in mind during that time so such specimens, which are intact in regard to the anatomy of the ankle and foot, especially the medial side, might be forwarded to the Orthopedic Research Laboratory. It is requested that the specimens be placed in a plastic bag with formalin and that all packages be directed to:

Dr. W. G. Selakovich
Orthopedic Research Laboratory
Second Floor, Barton Research Institute
University of Arkansas Medical Center
Little Rock, Arkansas

Help in this matter would be most certainly appreciated.

The New Orleans Graduate Medical Assembly

The twenty-ninth annual meeting of The New Orleans Graduate Medical Assembly will be held March 7-10, 1966, headquarters at The Roosevelt Hotel.

THINGS TO COME

Research Announcement

At the present time a research project is underway at the Orthopedic Research Laboratory concerned with orthopedic foot problems.

An urgent appeal for amputated lower legs or intact feet of children up to the age of fourteen

RESOLUTIONS

WHEREAS, the recent death of our colleague, Dr. W. M. McRae, has caused the members of this Society to be saddened, and

WHEREAS, Dr. McRae was an esteemed member of this Society for fifty-five years, and

WHEREAS, he was highly respected for his contribution in the field of medicine by both his patients and his colleagues, and

WHEREAS, he attained an enviable and valuable position of service to his community and his church,

BE IT THEREFORE RESOLVED:

THAT, we do pause with respect in memory

of Dr. McRae, and

BE IT FURTHER RESOLVED:

THAT, a copy of this resolution be forwarded to Dr. McRae's family, and

THAT, this resolution be made a part of the permanent records of this Society, and

THAT, a copy be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee

John McCollough Smith, M.D., Chairman

William L. Fulton, M.D.

T. Duel Brown, M.D.

Read to and Approved by the

Executive Committee

December 15, 1965.

WHEREAS, the Members of this Society wish to express their sincere sense of sadness on the loss of our colleague and friend, Dr. John Nye Compton, and

WHEREAS, Dr. Compton served well the cause of organized medicine as a member of this Society

and as its President; and

WHEREAS, he was held in high esteem not only by his colleagues, but by his patients, his church and his community as well;

BE IT THEREFORE RESOLVED:

THAT, we, the Members of the Pulaski County Medical Society, express our heartfelt sympathy to the family of Dr. Compton; and

THAT, this resolution be forwarded to his family, and

THAT, a copy of this resolution be made a part of the permanent records of this Society, and

THAT, we forward a copy for publication in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee

T. Duel Brown, M.D., Chairman

Gordon Holt, M.D.

Forrest Henry, M.D.

Read to and Approved by

The Society

December 7, 1965



PERSONAL AND NEWS ITEMS

Dr. Shields Is Soloist

Dr. William E. Shields, Texarkana surgeon, was the tenor soloist for the 12th annual performance of Handel's "Messiah" in December at the Texarkana College Auditorium.

Dr. Etherington Guest Speaker

Dr. Frank Etherington, a general practitioner from Eureka Springs, was guest speaker at a November meeting of the Rotary Club. He showed slides and discussed his work while he was in the Belgian Congo area.

Dr. Simmons to Bryant

Dr. Michael D. Simmons has opened his office for the practice of general medicine in the Bryant Shopping Center in Bryant, Arkansas. He is a graduate of the University of Missouri Medical School and formerly practiced at Booneville.

New VA Hospital Director

Dr. Lee G. Sewall has been appointed Director of the Fort Roots and Little Rock Veterans Administration Hospitals. He transferred to his new position from the VA Hospital at Perry Point, Maryland.

Dr. Edwards Honored

Dr. L. E. Edwards of Crossett was named the Crossett Chamber of Commerce's outstanding member of 1965 and was presented the "Man of the Year" award. He was honored for his work in organizing and leading to a successful conclusion the Chamber's new Industrial Committee.

Lewisville Doctors Elected

Dr. Robert W. Hunter has been elected president of the Lewisville Chamber of Commerce for 1966. Dr. W. R. Beaty is a member of the board.

Dr. Wade Receives Award

Dr. H. King Wade, Sr., of Hot Springs, received a Golden Service Award from Kiwanis International in December in recognition of 50 years in the field of professional service.

Physician Beaten and Robbed

Dr. Nicholas W. Riegler, Jr., a Little Rock physician, was beaten and robbed November 24th as he started to leave his office. He was hospitalized with facial cuts and bruises.

Dr. Hall Speaks to Kiwanis Club

Dr. Joe B. Hall of Fayetteville spoke to the Fayetteville Kiwanis Club in November. He discussed the need for more doctors and expressed the opinion that there should be an area for doctors' offices, just as there are for industrial areas.

Dr. Kemp Speaks to Rotarians

Dr. Charles Kemp of Jonesboro spoke to the Jonesboro Rotary Club in December. He told about his recent trip to Bolivia as a member of an Arkansas group that visited that country in the Alliance for Progress program.

Dr. Herron Received Award

Dr. J. T. Herron, state health officer, was the recipient at Washington in November of the McCormack Award, the highest recognition given to a public health officer in the Nation for services to mankind. The award is given only when a special committee from the State and Territorial Health Officers Association decides that a presentation is justified.

Dr. Shorey Speaker at Forum

Research projects of eight medical students were presented and discussed at the annual Medical Student Research Forum in November at the University of Arkansas Medical Center. Keynote speaker was Dr. Winston K. Shorey, Dean of the School of Medicine, who discussed "Current Trends in Medical Education".

Dr. Mizell Addresses Group

Dr. Walter Mizell, assistant superintendent of the Benton Unit of the Arkansas State Hospital, was a guest speaker at the Psychiatric Technicians Convention at Benton in November.

Dr. Ben N. Saltzman Re-elected to Head Chamber

Dr. Ben N. Saltzman was reelected to a second term as president of the Mountain Home Chamber of Commerce during a board meeting Tuesday at the Cedar Grill. Dr. and Mrs. Saltzman left December 11, 1965, for India, where he will address three of Rotary's district conferences and many Rotary Clubs. He has also been invited to address a sectional meeting of the Indian Medical Association.

Drs. Attend Cerebral Palsy Meeting

Dr. Samuel B. Thompson, Assistant Clinical Professor of Orthopedic Surgery at the University of Arkansas Medical Center, was installed in December as president of the American Academy of Cerebral Palsy. Dr. Samuel Clements, Associate Professor of Pediatrics and Psychiatry at the Medical Center, presented two teaching seminars on children with learning difficulties during the 4-day convention. Others from Arkansas attending were: Dr. James R. Ryan and Dr. M. R. Workman from the Medical Center; and Dr. Neil C. Stone, Medical Director of Arkansas Children's Colony at Conway.

Dr. Kaylor Honored

In a pre-game ceremony at the University of Arkansas Razorback Homecoming football game (Arkansas vs. Texas Tech), Dr. Coy C. Kaylor, team physician, was presented a plaque from the team in appreciation of his 15 years of dedicated service and inspiration.

Dr. Dalton Receives Plaque

Dr. Perry Dalton of Camden was presented with a plaque by the Ouachita County Hospital Board in November for loyal service to the hospital as Chief of Staff for the past year.



PROCEEDINGS OF SOCIETIES

Pulaski

In an effort to find some of the estimated 1,600,000 undetected cases of diabetes in the United States, the Pulaski County Medical Society sponsored Diabetes Detection Week November 14-20. Free testing kits were distributed to every drug store in the county for use by persons taking the test at home. Dr. George Mitchell served as chairman of the project.

Dr. Gilbert O. Dean is president-elect of the Pulaski County Medical Society for 1966. Dr. Joseph D. Calhoun is president and Dr. James R. Morrison is vice president.

Washington

The 1966 officers of the Washington County Medical Society are: Dr. Donald C. Baker, Fayetteville, president; Dr. John Power, Springdale, vice president; and Dr. Carie D. Buckley, Jr., Fayetteville, secretary-treasurer.

Ouachita

Dr. Joe Ellis of Camden has been elected president of the Ouachita County Medical Society for 1966. Dr. Judson Hout was elected vice president; Dr. Lowell Ozment, secretary; Dr. James Guthrie was named delegate and Dr. Larry Kilough was named alternate delegate.

Baxter

Dr. William R. Snow of Mountain Home has been elected president of the Baxter County Medical Society for 1966. Dr. Elwyn Shonyo is the new vice president; Dr. Ben Saltzman is secretary-treasurer; Dr. John F. Guenther was named delegate and Dr. Seldon W. Chambers was elected alternate delegate. Dr. Saltzman presented the program for the annual meeting of the society. The program included the showing of movies on the use of a new anesthetic.

Union

Dr. Robert Turnbow of El Dorado is the new president of the Union County Medical Society. Dr. Ronald Lewis, also of El Dorado, was re-elected secretary.



OBITUARY

Dr. Turner E. Buffington

Dr. T. E. Buffington, 86, of Benton died at his home on November 26th, 1965. He had practiced medicine in Saline and Garland counties since 1903, when he became company doctor for the Perry Smith Mining Company at Bauxite. He moved to Lonsdale in 1906 and to Benton in 1926. He delivered more than 6,000 babies during his practice. He had served as president and secretary of the Saline County Medical Society and was mayor of Benton in 1951-52. He was ordained a deacon in the Baptist Church in 1910. He helped organize the First Baptist Church of Bauxite. The people of Benton honored Dr. Buffington last May on his 86th birthday. Survivors include his widow and one son.

Dr. Washington M. McRae

Dr. Washington McRae, 84, a retired Little Rock physician, died December 13th, 1965. He was born in Mount Holly and was graduated from the St. Louis School of Pharmacy and the University of Arkansas Medical School. He began his practice in Scott in 1907 and moved to Little Rock in 1912 where he practiced for more than 50 years.

He was a member of First Presbyterian Church, North Little Rock Elks Club, Pulaski County Medical Society, Arkansas Medical Society, American Medical Association and the American Psychiatric Association. He is survived by his widow, a son and a daughter.

Dr. Norf G. Partee

Dr. Norf Partee of Camden died November 27th, 1965, at the age of 77. He was born at Coldwater, Mississippi, October 31st, 1888. He had practiced medicine in Arkansas for 55 years; he moved to Camden in 1937. He was a graduate of the University of Arkansas Medical School and did his post graduate work at Chicago, St. Louis and New Orleans. He was a past president of the Ouachita County Medical Society; a member of the Arkansas Medical Society, and the American Medical Association. He served as the first chief of medicine of the Ouachita County Hospital. Survivors include his widow and one daughter.

Dr. John Nye Compton

Dr. John N. Compton, 66, a retired Little Rock internist, died November 25th, 1965. He was born in Alexandria, Louisiana. He received his M.D. degree from the University of Arkansas School of Medicine in 1927 and interned at Charity Hospital in New Orleans. He served a residency at Central Louisiana State Hospital before entering the practice of medicine in Little Rock. He was a member of the American College of Physicians and he served as governor for Arkansas for that organization from 1956 until 1962. He was a past governor of the American Academy of Internists and a past president of the Pulaski County Medical Society. He was on the staff of Arkansas Baptist Hospital, served as chief of staff at St. Vincent Infirmary, and was clinical professor of medicine at the University of Arkansas School of Medicine. He was a member of the Pulaski County Medical Society, the Arkansas Medical Society and the American Medical Association. He was a member of Christ Episcopal Church. He is survived by his widow and one son.

Dr. Benjamin D. Luck, Jr.

Dr. B. D. Luck, Jr., of Pine Bluff died November 14th, 1965, at the age of 60. He was born in Pine Bluff and received his pre-medical education from the University of Arkansas. He graduated

from the University of Tennessee Medical School in 1930 and interned at St. Joseph's Memorial Hospital in Tampa, Florida. He had practiced medicine in Pine Bluff since 1931. Dr. Luck was a member of the Little Rock Consistory, the Sahara Shrine Temple, Pine Bluff Country Club and Rotarians. He was also a member of Jefferson County Medical Society, the Arkansas Medical Society and the American Medical Association. He was a member of the First Methodist Church. He is survived by his widow, a son and two daughters.

Dr. Frank Carroll Maguire, Sr.

Dr. F. C. Maguire, Sr., aged 82, of Augusta, died November 27th, 1965. He was born in Maryland and he was a graduate of the University of Alabama and the University of Pennsylvania. During World War I he was assigned to Third British Army in France and received the French Croix de Guerre with Palm. He was on the medical staff of a mining concern in Alabama until 1923, when he moved to Augusta. He was active in Augusta civic affairs. He was chairman of the Woodruff County Library Committee and coroner for Woodruff County from 1921 until 1954. He was a Presbyterian. He is survived by a son, Dr. F. C. Maguire, Jr., of Augusta, and two grandchildren.



**NEW
MEMBERS**

DR. ROY DUANE HOKE is a new member of the Pulaski County Medical Society. He is a native of Mohall, North Dakota; he received his preliminary education from Minot State College and the University of North Dakota. Dr. Hoke was graduated from the College of Medical Evangelists in Los Angeles, California, in 1954. He interned at White Memorial Hospital in Los Angeles. He has practiced in New Orleans,

Louisiana. Dr. Hoke is now at the University of Arkansas Medical Center. His specialty is pathology.

Crittenden County Medical Society announces that DR. JERRY F. RANDOLPH is a new member. A native of Booneville, Mississippi, he received his pre-med at Memphis State University. He then enrolled at the University of Tennessee School of Medicine and was graduated from there in 1964. He interned at St. Francis Hospital in Wichita, Kansas. Dr. Randolph has served three years with the U.S. Paratroops. His office address is Turrell Clinic, Turrell, Arkansas. He is a general practitioner.



BOOK REVIEWS

RYPINS' MEDICAL LICENSURE EXAMINATIONS, 10th Edition, edited by Arthur W. Wright, M.D., Professor of Pathology, Albany Medical College of Union University, pp. 840, published by J. B. Lippincott Company, East Washington Square, Philadelphia, Pa., 19105, 1965.

This text, as the name implies, is designed to assist the applicant for medical licensure in passing his board examination. If used as a guide for the type of examination questions that are likely to be asked, the book is valuable. If it is used as a means of cramming for an examination, it is probably inadequate. This book has no outstanding attribute. It possibly lends some sense of security in preparing for a state board licensure examination, and that is its principle value. AK

MANAGEMENT OF THE PATIENT WITH CANCER, edited by Thomas F. Nealon, Jr., M.D., Professor of Surgery, Jefferson Medical College, with contributions by Seventy-one authorities, illustrated, pp. 1067, published by W. B. Saunders Company, Philadelphia and London, 1965.

This is a very interesting text in which a number of outstanding authorities collaborate under the editorship of Dr. Nealon, who is professor of surgery at Jefferson Medical College. The book is divided into two categories: general consideration and specific consideration. Under the general considerations head, the author discusses the diagnoses and treatment of cancer by various means including radiation, chemo-therapy, surgery, etc. The specific considerations discusses cancer of the various organs. The book has good references, a number of illustrations, and is well written. In the reviewers opinion, it is a very worthwhile text which would be of value to the medical student and all practicing physicians. AK

EVALUATION OF LIVER FUNCTION, prepared by Carroll M. Leevy, M.D., F.A.C.P. Professor of Medicine, Seton Hall College of Medicine, Jersey City, New Jersey;

Editorial Consultants: Hans Popper, M.D., F.A.C.P., Director of Pathology, Mount Sinai Hospital, New York, New York, and Charles S. Davidson, M.D., F.A.C.P., Associate Professor of Medicine, Harvard Medical School, Boston, Massachusetts, pp. 93, illustrated, published by The Lilly Research Laboratories, Indianapolis, Indiana, 1965.

This is a well-illustrated graphic book which discusses liver function tests. The text is exceptionally well written. Drs. Leevy, Popper, and Davidson are outstanding authorities in this field. This book will be of considerable interest to the general physician. Because of its brevity, it will not be of cardinal interest to the internist. AK



Rheumatoid Disease With Unusual Pulmonary Manifestations

A. J. Ognibene and W. R. Dito (US Army Hosp, Nürnberg, APO 696, US Forces) *Arch Intern Med* 116:567 (Oct) 1965

A case of rheumatoid arthritis associated with pulmonary fibrosis, hemosiderosis, and concretions is presented. Bilateral pulmonary infiltrates were noted roentgenologically in a relatively asymptomatic 42-year-old Negro man over a period of four years, without demonstrable progression or anemia. Following the discovery of a cryoglobulin and a markedly positive serum latex fixation, a diagnostic thoracotomy was performed. Subsequently, the patient developed typical clinical rheumatoid arthritis involving the hands, shoulders, and knees.

Digitalis Toxicity: Treatment With Diphenylhydantoin

Tzu-Wang Lang et al (E. Corday, Cedars of Lebanon Hosp, Los Angeles) *Arch Intern Med* 116:573 (Oct) 1965

Diphenylhydantoin is an effective agent for treating arrhythmias caused by digitalis intoxication in the dog and human. It lowered the mortality in dogs from 60% to 5% and has been applied successfully in the treatment of humans with digitalis toxicity.



Sponsored by Arkansas Tuberculosis Association

ETIOLOGY OF ACUTE RESPIRATORY INFECTIONS

In a study organized by the Working Party on Acute Respiratory Virus Diseases of the Medical Research Council of Great Britain, 575 positive cultures were obtained from 1,888 children and adults living at home. Illnesses covered the range of prevalent mild disease.

In recent years many previously unknown viruses have been isolated from the respiratory tract of patients suffering from respiratory diseases of various sorts. Some of these viruses cause respiratory disease in such groups as children admitted to hospitals, military recruits, and medical students. However, most acute respiratory diseases occur in persons living at home. Little has been known of the causes of such diseases.

In June, 1961, a collaborative study was inaugurated to investigate a large number of acute respiratory infections in a cross-section of the population. The study continued to June, 1964, with work carried out in 24 centers in Britain. Standard laboratory methods were used for virus isolation.

Children up to 16 years of age who were living at home were first studied. Later, the scope of the investigation was widened to include adults at home or at work. Children in hospitals were also studied to determine whether viruses recovered from small children with severe respiratory disease were the same as those found in milder cases in general practice.

Specimens—usually a throat swab and a nasal swab—were collected from 1,888 patients with acute respiratory infections. On culture, 575 were positive. Patients were examined clinically and the history and diagnosis were recorded on a standard form.

AGENTS ISOLATED

A virus or hemolytic streptococcus was isolated

from one patient in three below the age of 17 and from one in four aged 17 or over. Viruses were relatively more common in patients below the age of 6.

Influenza viruses were isolated in the first three months of each year in a pattern which reflected the national prevalence of infection. Para-influenza viruses of all three types appeared each winter in scattered areas and the returns suggested that some areas had sharp outbreaks lasting a few weeks.

Respiratory syncytial (R.S.) virus was isolated by most laboratories. Enteroviruses were isolated mainly from children under 6, but also from those up to 10, and adenoviruses and enteroviruses were found roughly equally in all age groups up to 10. Herpes simplex and rhino-viruses were isolated with almost equal frequency from all age groups, and the pattern with influenza was the same, except that this virus group seemed to pass by infants less than a year old.

Two or three pathogens were obtained simultaneously from 25 patients. In 18 instances one organism was the streptococcus, but each case was classified as infected by the virus isolated.

Serological typing of the viruses showed that para-influenza viruses 1 and 3 were each about twice as common as type 2. Adenoviruses types 1, 2, and 5, the "endemic" types, were found about as often as the "epidemic" types, mainly represented by type 3. Polioviruses were uncommon. The coxsackieviruses of group A most commonly found, types 2, 4, 5, 6, and 10, are those associated with disease such as herpangina. All serotypes of coxsackieviruses of group B except type 6 were found. Only echo-virus type 6 was found in appreciable numbers.

COLDS MOST COMMON

Most of the patients were suffering from mild infections of the upper respiratory tract. The largest number of cases—437—was diagnosed as the common cold. Sore throat accounted for 376

Report prepared by DR. D. A. J. TYRRELL; *British Medical Journal*, August 7, 1965.

diagnoses; feverish cold, 341. Next came bronchitis, 179; influenza, 144; "croup", 127; pneumonia, 103; bronchiolitis, 46; otitis media, 42; and miscellaneous conditions, 93.

Pathogens were recovered most frequently from cases of sore throat; half of these were streptococci. Isolations from patients with colds (94 of 437, or 21 per cent) may have been unsuccessful because so little virus was shed or because the tests used would not detect the viruses causing the disease; the latter suggestion is supported by evidence that some of the viruses which are presumed to cause colds cannot be isolated in any known culture system.

An analysis of the medical histories of the patients showed that blockage and running of the nose were each recorded in about half the virus infections, but the nose was relatively drier in adenovirus infections and wetter in enterovirus and rhinovirus infections. Nasal symptoms were less common in streptococcal illnesses. Sore throat was uncommon in parainfluenzal infections and common in adenovirus, enterovirus, and streptococcal infections. Cough was common in infections with the myxoviruses but also occurred in infections with enteroviruses and streptococci and in over half the rhinovirus infections. Hoarseness was noted in infections by all virus groups, but was found most often in influenza and parainfluenza virus infections. Chest pain in enterovirus infections may have been due to myalgia, but was generally uncommon. Wheezing was slightly more common, being part of the clinical picture of bron-

chiolitis caused by R.S. virus, but was also found in about one in 10 patients infected with other viruses except influenza. Febrile symptoms were common in influenza, adenovirus, and enterovirus infections, and also in those due to streptococci. Their apparent absence in R.S. infections may have been due chiefly to the youth of the patients; in rhinovirus infections it showed that many illnesses were very mild.

Such physical signs as obstruction of the nose and nasal discharge were present in more than half the infections except those due to enteroviruses or streptococci. Chest signs (rales and rhonchi) were most common in infections due to the R.S. virus.

FAMILY DATA

When records for the entire family were analyzed, it was apparent that the preponderance of infections of small children was with parainfluenza viruses, R.S. virus, and adenovirus types 1, 2, and 5, suggesting that these are among the first viruses to invade the family.

Respiratory diseases are difficult to describe exactly. The information reported on clinical syndromes and signs and symptoms may be criticized because of the combined effect of observer error and differences in diagnostic labelling among clinicians. In support of their validity is the fact that the association between certain symptom complexes and certain virus infections was evident in the figures from individual centres analyzed separately.



Porphyria Cutanea Tarda

J. H. Epstein (University of California Medical Center, San Francisco) and J. B. Pinski *Arch Derm* 92:362 (Oct) 1965

High serum iron values with marked transferrin saturation were noted in 4 of 15 patients with porphyria cutanea tarda (PCT). Four others had serum iron and saturation levels near the upper limits of normal. In addition, the presence of hepatic dysfunction and the increased incidence of diabetes in this disease were confirmed. However, a relationship between the characteristic

chemical and photocutaneous features of PCT and hemochromatosis could not be substantiated. The mechanisms responsible for the elevated iron values are discussed. The available evidence to date suggests increased absorption rather than reduced utilization as the cause of the abnormal iron findings in PCT. An unexplained but significant tendency to polycythemia was also noted in this series. Two patients had hemoglobin levels greater than 17.5 gm%, and six others, had values greater than 16 gm% and/or packed cell volumes higher than 50%.

March, 1966

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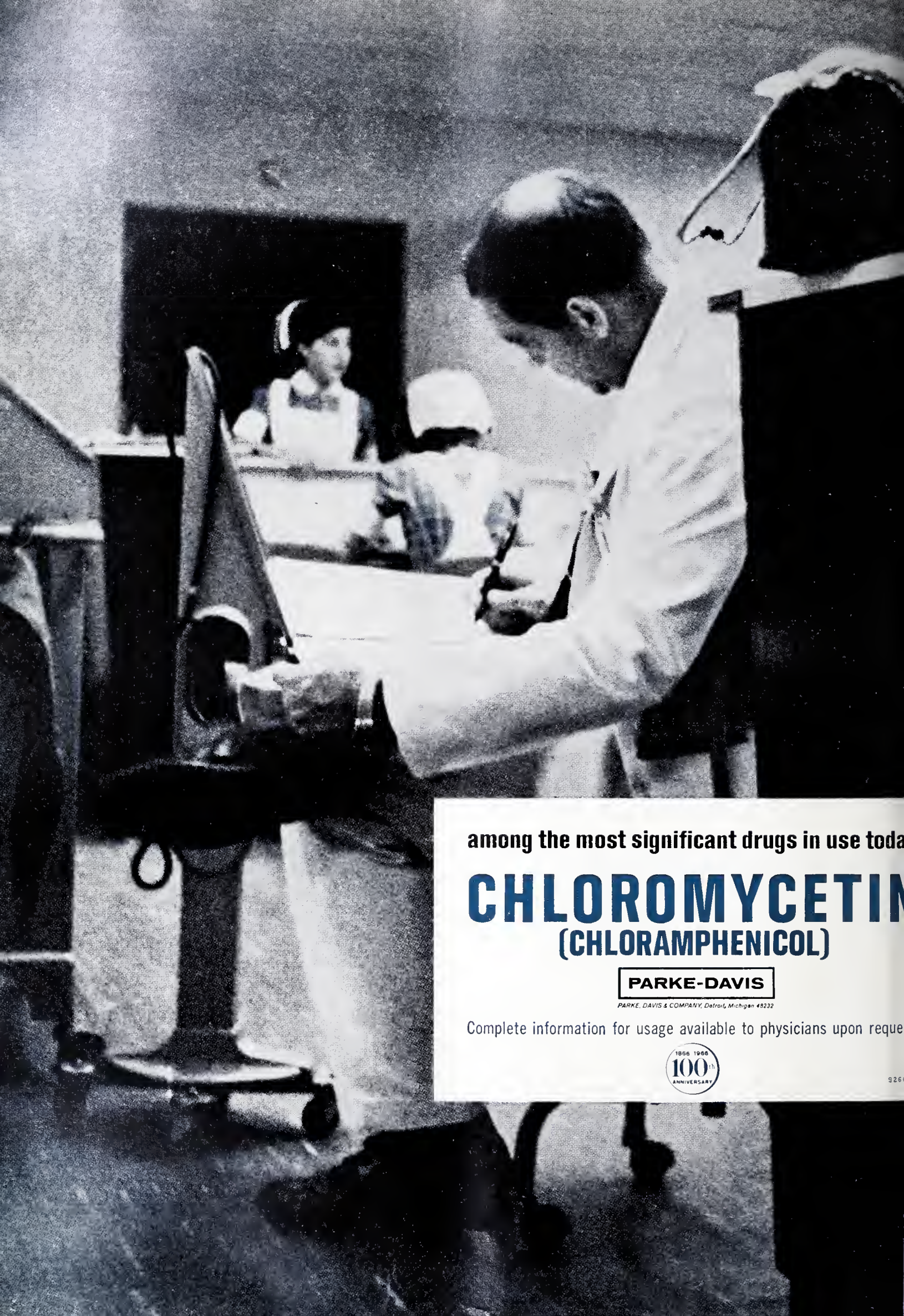
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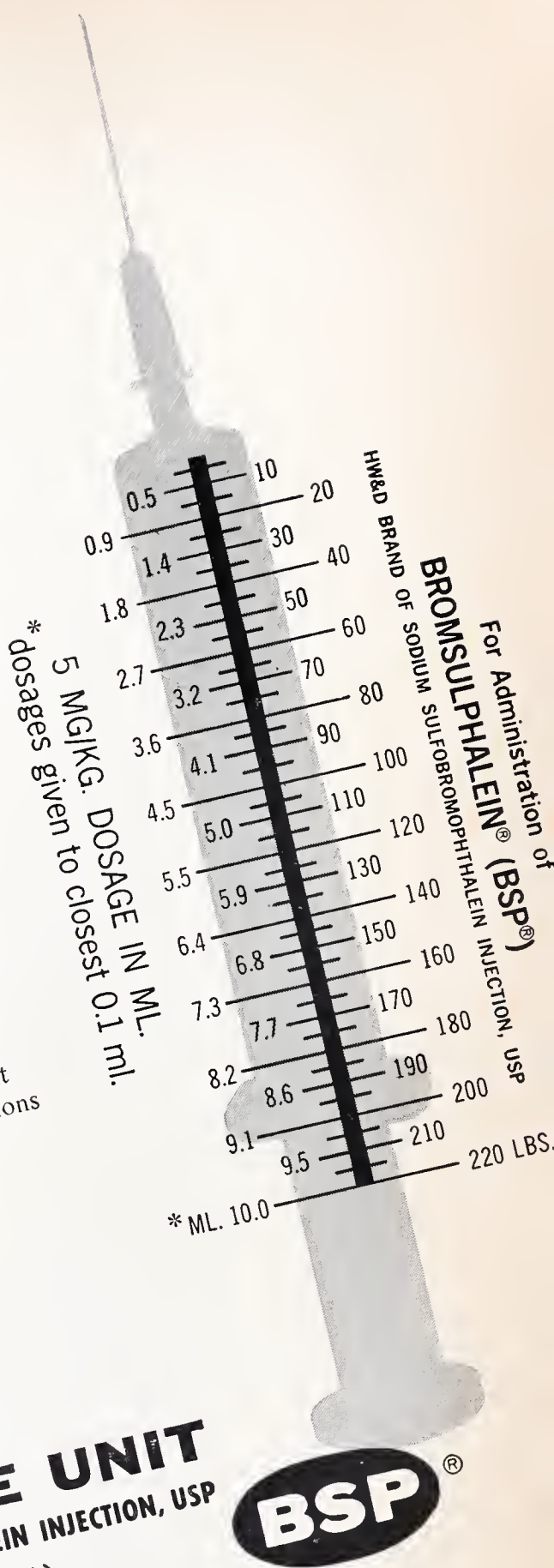
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TUNING FORKS

A Diagnostic Aid in Hearing Loss

James J. Pappas, M.D.*

H. A. Ted Bailey, Jr., M.D.*

Frederick N. Martin, M.A.*

In recent years, with the rapid population increase, the advances made in modern medicine leading to increased longevity, and the constant exposure to loud noises in our modern day environment, the hard of hearing population is increasing.

Hearing loss is generally divided into two broad categories, conductive and sensory-neural (nerve type). Those with a conductive type hearing loss can frequently be helped with surgery, with medication or other treatment. Patients with a pure sensory-neural loss generally have an irreversible process, and the impaired hearing cannot be surgically restored. Nevertheless a great deal of information can be given to these people which will make it possible for them to deal better with their hearing problems. The patient's ability to wear a hearing aid successfully in large measure depends on the type and degree of hearing loss. Therefore, the importance of distinguishing the type of loss the patient has is readily apparent.

Modern science has led to the development of a number of ingenious instruments for the assessment of hearing function. This instrumentation is extremely delicate and the tests often quite time consuming. However tuning forks, when properly used, afford considerable information to the otologist and general physician alike and offer a helpful aid to diagnosis. Tuning forks are inexpensive and with them one can usually differentiate between a conductive and a sensory-neural hearing loss with a high degree of accuracy.

The tuning fork is an instrument made of magnesium alloy or steel which is designed, when activated, to vibrate at a particular frequency (pitch). A wide variety of frequencies are avail-

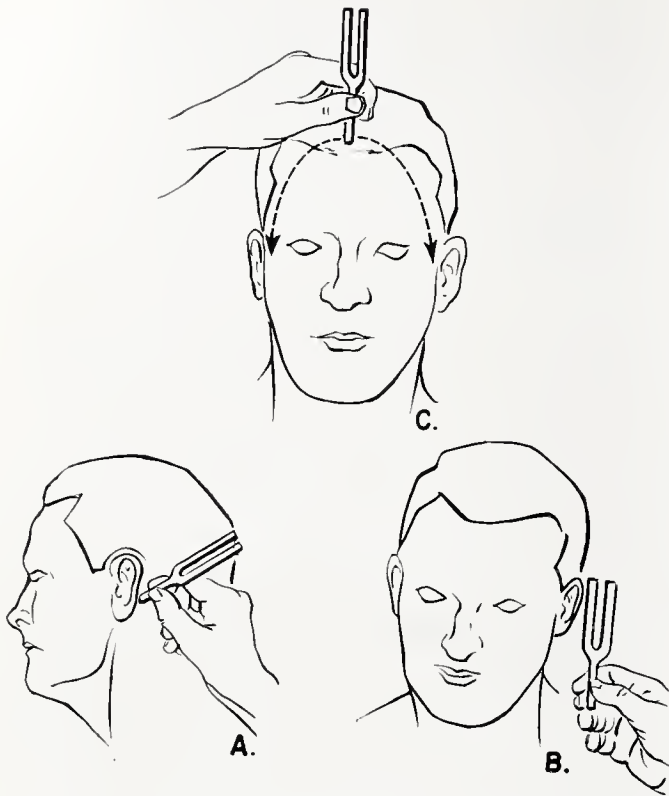
able. We recommended frequencies 256, 512, and 1024 cycles per second for use with the standard tuning fork tests, since frequencies above and below those mentioned introduce several variables. The tuning fork may be activated by holding the stem in the hand and striking one of the tines against a firm object. The knuckles or knee may be used for this purpose. The heel of the shoe can also be used as it is resilient enough to preclude any damage to the fork.

The instructions for each test are clearly made to the patient before each one is carried out. All tuning fork tests should be performed in a quiet room with little exchange of conversation between the physician and his patient during actual testing.

The purpose of this paper is to describe three tuning fork tests which have met the test of time and are practiced widely. They are the Schwabach, The Rinne, and the Weber.

The Schwabach test is designed to compare the patient's hearing by bone conduction with that of the physician, assuming that the physician has normal hearing. (See Fig. 1A) After the fork is set into vibration the stem is placed on the patient's mastoid process. He has been instructed to raise his finger when he hears the tone in his ear and to lower it when he no longer hears the tone. After the patient raises his finger, the physician places the fork on his own mastoid process to see if he can also hear the tone. The patient's finger in the meantime naturally goes down since he no longer hears the tone after the fork is removed. The fork, still vibrating, but gradually getting weaker is alternately placed back and forth from the patient's mastoid to the physician's. This is done until neither the patient nor the physician

*1610 West Third, Little Rock, Arkansas



hears the tone. The patient therefore relates his ability to hear this diminishing tone by alternately raising and lowering his finger.

The Schwabach test indicates whether the patient and the examiner hear the tone approximately the same length of time (normal Schwabach); whether the patient hears the tone longer than the physician (prolonged Schwabach); or whether the patient hears the tone for a shorter time interval than the physician (shortened Schwabach). The assumption of this test is that if the doctor hears the tone for a period considerably longer than the patient that the patient's hearing for bone conduction (nerve function) is poorer than normal and indicates a sensory-neural hearing loss. The patient with a normal Schwabach is assumed to have normal hearing, while the patient with a prolonged Schwabach represents a conductive type of hearing loss.

The Rinne Test is designed to compare the patient's hearing by bone conduction with his hearing by air conduction. For this test the fork is once again activated and the stem of the fork is placed first on the mastoid process (Fig. 1A) to determine the patient's response by bone conduction, and then the fork is removed. Next the fork with vibrating prongs is placed an inch from the patient's external ear canal being tested (Fig. 1B) to determine the patient's response by air conduction. The fork must be held an inch from the ear in such a manner that the prongs are vibrating

along the long axis of the external canal. The patient is asked to state whether the tone is louder at the ear (air conduction) or behind the ear (bone conduction). A patient with normal hearing will hear the tone louder at the ear than behind the ear since air conduction is a more efficient system for sound transmission than bone conduction. The patient with a sensory-neural hearing loss will also hear the tone louder at the ear than behind the ear since his bone conduction (hearing nerve) ability is impaired. Since sound conduction is impaired at the external or middle ear level, the patient with a conductive hearing loss will hear the tone louder behind the ear than at the ear.

The interpretation of the Rinne test is as follows: If the tone is heard louder behind the ear (on the mastoid process) than at the external meatus, (negative Rinne), it may be assumed that there is mechanical interference with the sound conducting apparatus of the external or middle ear and that the hearing loss is basically conductive in origin. If the tone is heard louder at the ear than behind the ear, (positive Rinne), and if there is a loss of hearing, it is felt that the hearing loss is sensory-neural. The patients with normal hearing will also have a positive Rinne as normally air conduction is greater than bone conduction.

One of the greatest pitfalls to watch for and avoid in performing the Rinne test is the so-called "false negative Rinne." This is seen in the patient who has a marked sensory-neural loss or even a "dead" ear on one side. The bony skull is an excellent sound conductor and when a vibrating fork is placed over one mastoid bone, the sound can easily be cross-heard by the opposite ear. In a case of severe sensory-neural loss or complete absence of hearing on one side, the patient might indicate that he hears the tuning fork by bone conduction but not by air conduction (negative Rinne) when in fact he is cross hearing the tone in the opposite ear. If the examiner is not aware of this possibility, he can mistake the patient's sensory-neural loss for a unilateral conductive loss. The distinction is very important as the patient's candidacy for corrective surgery depends on accurate diagnosis.

The Weber Test is designed to differentiate conductive from sensory-neural losses, but may be used only in cases where the hearing is considerably better in one ear than in the other. Of the

three recommended frequencies, the results of the 256 fork are the most reliable in the Weber Test.

The Weber Test is performed in the following manner: The stem of the vibrating fork is placed somewhere in the midline of the patient's head. (Fig. 1C). This maybe in the middle of the forehead, on top of the head, on the chin or on the upper medial incisor teeth. The patient is then asked whether the tone is heard louder in the right or left ear. The interpretation of this test is as follows: If the tone is heard louder in the patient's better hearing ear, it is assumed that the poorer hearing ear suffers from a sensory-neural loss. Conversely, if the tone lateralizes to the poorer hearing ear, it may be assumed that the loss in the ear is of a conductive nature. If the tone lateralized to neither ear, this is an indication that the cochlear function for both ears at the frequency tested is approximately the same.

The Weber test results, in combination with the

Rinne test results, should point out the presence of a false negative Rinne response in cases of unilateral hearing losses and thus prevent an erroneous diagnosis. The Weber Test is extremely valuable in cases of unilateral hearing loss.

The patient should be advised before the tuning fork test has begun that he should not be prejudiced regarding his responses and answers. The performances of the three tests described above using three tuning forks of standard frequencies may be carried out in less than three minutes in the physician's office. The various test results in different hearing situations are summarized in the following way:

<i>Tests</i>	<i>Schwabach</i>	<i>Rinne</i>	<i>Weber</i>
Normal Hearing	Normal	Positive	Does Not Lateralize
Conductive Loss ¹	Prolonged	Negative	Lateralizes to Poorer Ear
Sensori-Neural Loss	Shortened	Positive	Lateralizes to Better Ear



Tracheostomy for Functional Ventilatory Obstruction

G. F. Gowen (Misericordia Hosp, Philadelphia), W. W. Lindenmuth, and A. C. W. Montague, *Arch Surg* 91:875 (Dec) 1965

There are three forms of ventilatory obstruction—mechanical, secretional, and functional. Mechanical obstruction due to foreign bodies and tumors can be relieved by prompt tracheostomy. In secretional obstruction, the excessive production of secretions and the inability to remove them are related to primary lung disease, eg, bronchitis, emphysema, and fulminating pneumonia. In functional obstruction, there is interference with breathing, coughing, and swallow-

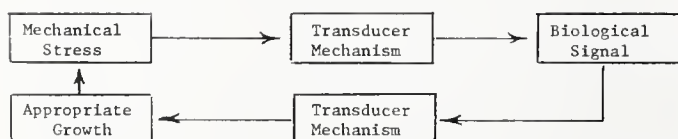
ing either because of tumors, edema, and inflammation in the aerodigestive tract or because of central nervous system depression. This produces a form of secretional obstruction that is secondary to a primary lesion outside of the tracheobronchial tree. In functional obstruction, the primary lesion must be recognized and treated since tracheostomy alone fails to reverse the mechanism of the secretional problems. In some patients, the ventilatory problem has its basis in a congestive heart failure, lung tumor, or terminal metastatic disease. In such cases, as well as in many similar cases, tracheostomy may be completely contraindicated and if performed, may add to the patient's suffering. This would be due to the secretional and functional obstructions.

The Control System Governing Bone Growth in Response to Mechanical Stress*

Robert O. Becker, M.D.**

Bone grows in response to applied mechanical stress in such a fashion as to produce an anatomical structure best able to resist the stress. This phenomenon, first described by Wolff in 1892,¹ is of considerable clinical importance, enabling the bone structure of the body to be in a dynamic equilibrium with the changing mechanical stresses imposed by activity. This growth phenomenon is quite different from both epiphyseal growth and fracture healing, in that it is continuously going on, producing rearrangement of structure in response to changing stresses. In its simplest form, that of the response to bending stress, the concave or compressional side experiences increased growth resulting in the laying down of new osteones along the lines of stress while the convex or tensional side experiences resorption of bone elements. This process is amenable to study by standard control system concepts and appeared to offer considerable promise for giving us some insight into growth phenomena in general. Some years ago my colleagues: Dr. C. A. L. Bassett, of Columbia University and C. H. Bachman, of Syracuse University and myself began such a study.

In analyzing this growth process as a "simplest possible" control system; i.e. as a closed loop negative feedback chain, one arrives at the following control system diagram:



Obviously the bone in some fashion senses the stress applied, this implies some mechanism for converting the mechanical energy into a signal which must be proportional to the magnitude of

the stress and indicative of the direction of application. The signal must activate a second transducer mechanism that produces bone growth along the lines of stress.

Because of previous work on regenerating growth systems² we postulated that the signal would be electrical in nature. A search for this revealed that long bones subjected to bending stress did show electrical activity in vitro, the side under compression becoming negative with respect to the side under tension. It was possible to detect the flow of an extremely small current between the two surfaces, the magnitude of the current being proportional to the magnitude of the stress. Since the current flow was primarily unidirectional it was felt that possible classical piezoelectric properties of either the bone mineral or the collagen fibers³ was not the mechanism of production and we suggested that possibly some stress sensitive semiconducting mechanism was operative.⁴

In order for a substance to exhibit semiconducting properties the molecular structure of the material must be crystalline or quasi-crystalline in nature. Electron microscopy has demonstrated that bone is such a highly ordered system, consisting of primarily two components at the molecular scale. The organic matrix consists of collagen fibers lying parallel to each other and roughly parallel to the long axis of the bone. These fibers show the standard 640Å cross striation of native collagen while affixed to the surfaces of the fibers are the minute crystals of bone mineral. These crystals are 200-500Å in length and lie between the cross striations of the fibers with their long axis parallel to the fiber axis. The present concept is that the mineral crystals are most probably hydroxyapatite. In our initial studies we utilized whole bone and were able to show that it exhibited the general properties of a semiconductor; i.e. it could carry small currents, at small

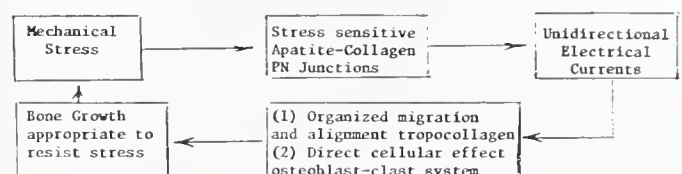
*This material was presented at the Biophysics Seminar, University of Arkansas, College of Medicine, June 4, 1965.

**Chief, Orthopedic Section, Veterans Administration Hospital, Syracuse, New York; Associate Professor of Surgery, State University of New York, Upstate Medical Center, Syracuse, New York.

voltages for long periods of time and the magnitude of the current at any single voltage level was very temperative sensitive. Analysis of the two components separately, revealed that they were both semiconductors but of different types, collagen being an N type (conducting by means of negative charge carriers) while apatite was P type (conducting by means of positive charges).⁵ When two such semiconductors are joined together in certain precise fashions a particular device called a PN junction diode is formed. Such structures have certain very specific properties, the most important of which, for our purposes, is a very great sensitivity to mechanical stress with the output of a unidirectional current under such stress. Obviously this is then ideal as the mechanism of stress electrogenesis in bone. We have substantiated this view by demonstrating that bone possesses other characteristics peculiar only to a PN junction diode such as rectification⁴ and specific photoelectric effects such as photoconductivity, photovoltaic effect and action spectra.⁶ In all of these instances a remarkable similarity was noted between bone and manufactured inorganic PN diodes. We have therefore concluded that mechanical stress applied to a bone produces a proportional electrical signal by virtue of the PN junction diode, produced by the precise relationship between apatite and collagen.

Having now arrived at an appropriate signal and a mechanism to produce it, the next question is, how does the signal produce directed bone growth? Two mechanisms were considered, first that the unidirectional electrical current may be involved in the migration of either mineral ions or elements of the organic matrix and second that the activity of the cellular elements of bone might be influenced by the electrical environment. In the latter case we know that an equilibrium normally exists between osteoblasts building bone and osteoclasts destroying bone, and that each cell type can be converted into the other depending upon certain unknown circumstances. The first possibility was studied initially and tropocollagen was chosen as the possible migratory molecule. Tropocollagen is a filamentous protein molecule about 2400Å long and 14Å side which is known to be an electrical dipole. It is the immediate precursor of the collagen fibers and since the orientation of the bone matrix is basically the result of collagen fiber orientation appropriate migration and alignment of tropocollagen in an

electrical field would be most satisfying. Experimentation did reveal such migration, much more satisfactorily in fact than can be explained on a theoretical electrophoretic basis. The molecules of tropocollagen within a solution will migrate under the influence of a very weak electrical current ($<1\mu\text{A}$), towards the negative pole but will become stationary at a point $\frac{3}{4}$ of the way between the negative and positive poles. In this position they line up parallel to each other and *transverse* to the lines of current flow.⁵ This position and orientation is precisely identical to that of newly formed collagen fibers in living bone subjected to bending stress! The mechanism responsible for this phenomenon is as yet unknown, however, we do know that all chemical methods of polymerization of collagen from tropocollagen solution produce a random network without parallelly arranged fibers. The migration and alignment of tropocollagen fibers in electrical fields of a strength similar to that produced by stressed bone is obviously one method of producing organized growth. However, this will not produce resorption at the positive area, and in order to study this aspect small battery powered devices were inserted into the long bones of dogs. At certain very precise current levels (2 to 10 μA between electrodes separated 1 cm.) prolific new bone growth associated with large numbers of osteoblastic cells occurred in the vicinity of the negative electrode. There also appeared to be some resorption at the positive pole although at this time this process is difficult to assess.⁷ We may therefore complete our theoretical control system as follows:



The reader is cautioned that this control system is appropriate for the growth response to mechanical stress only, and is not related to either fracture healing or epiphyseal growth (although both of these phenomena demonstrate electrical properties also). The present status of our research does not warrant any clinical application, at this time. In this regard the easily simulated electrical control signal furnishes an ideal site for clinical intervention, however, the author believes that the occasions in which this system will be used to

produce growth stimulation will be few in number. One might better examine the growth retardation at the positive electrode in the light of the extremely poor clinical results from all types of therapy in malignant bone tumors. It is interesting to note that Humphrey & Seal reported in 1959 that low amperage direct currents not only inhibited the growth of unplanted sarcoma in mice when oriented so that the tumor area made electrically positive, but also in a significant number of animals there was complete disappearance of the tumor, and long term survival of the host animal.⁸

Looking beyond the possibilities of imminent clinical application, the identification of this growth control system appears to be of some basic import in the study of growth in living systems in general.

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Disposable Cryophake

R. D. Mattis (1325 S Grand Blvd, St. Louis), H. R. Brady, and T. Sugana, *Arch Ophthal* 74:787 (Dec) 1965

A new cryosurgical instrument which was used in 18 cataract extractions is described. Cooling is provided by the vaporization of Freon liquid on the heat-sink of the insulated tip. The instrument is light, well-balanced, and provides ample tractile power, through the iceplate formed in the lens, extracting the cataract intracapsularly. Potential complications are few, and an accidental adherence to sutures or tissues is easily freed by a jet of room temperature, normal saline being directed on the material. The Cryophake will be supplied in a cobalt 90 irradiation-sterilized disposable package containing Freon liquid in aerosol-type cartridges.

The Effect of Laser Radiation on the Retinal Vasculature

F. A. L'Esperance, Jr. (1 E 71st St, New York), *Arch Ophthal* 74:752 (Dec) 1965

Experimental evidence indicates that the efficacy of laser radiation on the retinal vasculature depends upon the proximity of the pigment epithelium or melanocytes to the blood vessel, the rate of blood flow, the amount of reduced hemoglobin present, and the intensity of the incident beam. Clinical studies showed that elevated areas of neovascularization and large retinal angiomas were not effectively treated during the one year study. Most microaneurysms, a small percentage of the flat areas of neovascularization, and retinal angiomas less than two disk diameters in size were obliterated by the coagulative effect of laser radiation.

A History of the Therapy of Angina Pectoris

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INTRODUCTION

To understand the course of the development of the therapy of Angina Pectoris, it is necessary to review the theories that have been in vogue regarding its etiology.

It was in 1768 that Heberden drew his remarkable clinical picture of what he called angina pectoris, of which he had seen twenty cases. Even today there is little to add or subtract from Heberden's description of angina pectoris. Although there was marked agreement upon the symptomatology, there was little agreement upon the cause of angina pectoris.

In England, John Hunter and his students were proponents of the coronary origin of angina. They did autopsies on several of their cases and in each instance found extensively ossified coronary arteries.

In Germany, many investigators ascribed angina pectoris to a rheumatic or gouty cause. In France, others ascribed it to a neuralgia of the pneumogastric nerve, the cardiac plexus or the diaphragmatic nerve.

Even as late as the early years of the present century such outstanding men as Allbutt, Wenckebach, R. Schmidt and Vaquez supported the so-called aortic theory of anginal pain as opposed to the coronary artery theory.

So it happened that in spite of reports showing disease of the coronary artery in angina pectoris it was long before the nervous—and later the aortic—origin was given up.

I. EARLY THERAPY UP TO DISCOVERY OF BENEFIT OF AMYL NITRITE (1867)

In 1829, Elliotson described the case of Robert Badies, age 30, who had angina pectoris and was treated with prussic acid, with apparent benefit. However, the patient "being a nonconformist took his departure without leave" and was lost to follow up. In 1841 Dr. Schlessier of Pietz reported one other case in which prussic acid proved to be of benefit. The patient was a man, aged 48, who had suffered for four years with periodical angina pectoris. Prussic acid was given in a dose of one drop every 2 to 3 hours. One hour

after starting the medicine, the symptoms lost their intensity and gradually diminished. After this the patient was subjected to a tonic regimen of alum with rattany root, and extract of lettuce.

In 1829 Dr. T. P. Teale, who believed that angina consisted of an affliction of the lower dorsal portion of the spinal marrow and the corresponding thoracic ganglia, cited three cases in which great relief of pain was afforded by topical applications to the cervical and dorsal vertebrae.

Thinking along the same lines, Duchenne, in 1855, suggested that angina pectoris could be cured by electric stimulation over the chest during an attack. He considered angina pectoris to be nothing but a neuralgia.

It was in 1867 that T. Lauder Brunton came to the decision to try amyl nitrite in the therapy of angina pectoris. He reported his first case as follows:

"During the past winter there has been in the clinical wards one case in which the anginal pain was very severe, lasted from an hour to an hour and a half, and recurred every night generally between 2 and 4 a.m. Digitalis, aconite and lobelia inflata were given in the intervals without producing any benefit, and brandy and other diffusible stimulants during the fit produced little or no relief. Small bleedings of 3 or 4 ounces whether by cupping or venesection, were, however, always beneficial. As I believed the relief produced by the bleeding to be due to the diminution it occasioned in the arterial tension, it occurred to me that a substance which possesses the power of lessening it in such an eminent degree as nitrite of amyl would probably produce the same effect and might be repeated as often as necessary without detriment to the patient's health."

"On pouring from 5-10 drops of the nitrite on a cloth and giving it to the patient to inhale the physiologic action took place in from 30-60 seconds, and simultaneously with the flushing of the face the pain completely disappeared and generally did not return till its wonted time next night."

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II. DISCOVERY OF NITROGLYCERIN (1879) AND ASSORTED REMEDIES

In 1879 Dr. William Murrell reported a case of angina pectoris in which very gratifying results followed the administration of nitroglycerin. The treatment was begun by drop doses of 1 percent nitroglycerin solution in half an ounce of water. In a week there was marked improvement, both in the frequency and in the severity of attacks, and it was found that the administration of a dose during an attack would cut it short.

In 1890 Dreschfeld stated, "The therapeutics of angina is so well known that I need scarcely allude to it. Of the nitrites, the nitrite of amyl acts quickly, but its action is of short duration; nitroglycerin on the other hand has a more permanent effect and may be given for a few days following the attack."

Apparently the therapy was not as well known as Dreschfeld thought, for it was just 35 years later (1924) that L. F. Bishop, who devoted his practice exclusively to cardiology, suggested that great relief of angina pectoris could be obtained by use of castor oil. He stated that "no matter how severe a condition of chronic anginal pain may be, one can often count up to 24 hours of increased comfort following a full dose of castor oil." His explanation was that the sympathetic system is related to angina pectoris and although it has its origin in the heart muscle, it is influenced by intra-abdominal conditions.

It was also in 1924 that L. T. Thorne reported that he had cured cases of angina pectoris by the administration of one or more courses of Nauheim baths. The relief produced was attributed to dilatation of the cutaneous vessels accompanied by a drop in the blood pressure and a relief of the contractile spasm which is present in the vessels. The relief produced was purportedly similar to that produced by amyl nitrite, but much more lasting.

III. EARLY SURGICAL TREATMENT OF ANGINA PECTORIS (1920-1930)

In 1899 Franck suggested resection of the cervical sympathetic ganglia for the relief of the pain of angina pectoris. Jonnesco was the first to act upon the suggestion of Franck. In 1920 he reported the cure of a case of angina pectoris by the resection of the left cervical sympathetic. Encouraged by this favorable result Jennings and Jennings in 1924 operated on 21 patients with

angina pectoris with 19 recoveries cited. In 16 cases the operation performed was resection of the cervical sympathetic—in 5 cases resection of the depressor nerve. Relief of the anginal pain was more or less complete with both operations.

Several other series were also reported in 1924 which represented minor variations of this original operation. All of these "experimental" operations had been done without much being said about the logic behind this type operation. In 1924 Sir James MacKenzie said, "The consequence of this state of affairs is that a subject like angina pectoris is still a matter for vague speculation and the employment of such drastic treatment as a surgical operation for a condition so little known does not rebound to the credit of medicine. The aim of surgical treatment is not to 'cure' the disease, but to prevent the patient feeling pain. Is it to the best interest of the patient that he should be deprived of a signal, it may be, of great value?"

In 1930 James White suggested that paravertebral alcohol injections of the dorsal communicant rami should be done instead of cervical sympathectomy. He stated that it was safer and that the results were distinctly better than in cervical sympathectomy.

IV. INDUCED HYPOTHYROIDISM IN THE THERAPY OF ANGINA PECTORIS (1935-1955)

About 1935 induced hypothyroidism became popular in the therapy of angina pectoris. Some authors thought the benefit obtained was due to decreased work load on the heart due to a lowered basal metabolic rate. Others theorized that the anginal symptoms were caused essentially by the local anoxiating effect of excess accumulations of epinephrine in the heart muscle which is sensitized to the effects of epinephrine by the thyroid hormone.

In 1935 Blumgart et al. reported total thyroidectomies on 25 euthyroid patients who had severe angina pectoris at rest. Eight of the patients had no recurrence of angina for from 3-18 months after operation in spite of increased activity. Four patients showed no improvement. The extent of permanent relief was generally related to the degree of induced hypothyroidism as indicated by the reduction in BMR. Most patients were kept at levels of minus 25% to minus 30% by the administration of one fourth grain

of thyroid daily.

Ten years later (1915) Wilhelm Raab treated 10 angina pectoris patients with thiouracil. Thiouracil proved therapeutically effective in 8 out of the 10 patients. However, Dr. Raab commented that the blood cholesterol was elevated when hypothyroidism was produced and added that this might be a serious disadvantage in that it might enhance coronary sclerosis.

In 1950, Blumgart, Freedberg, and Kurland, using radioactive iodine to induce hypothyroidism, reported that angina pectoris had been strikingly reduced or abolished in 8 of 13 patients with intractable cardiac pain. In the remaining 5 of the 13 patients with angina pectoris, the therapeutic result was not striking.

In 1955 these same authors reported a series of 720 patients with angina pectoris who had received such treatment. Three fourths of these showed worthwhile improvement. However, the authors emphasized that they had no reason to believe that hypothyroidism retards the progression of the underlying pathological process. It is a palliative measure.

V. INTRODUCTION OF SURGICAL PROCEDURES AIMED AT RELIEVING ISCHEMIA BY REVASCULARIZING THE HEART (1935-1945).

In 1925 several surgical procedures were introduced which were aimed mainly at blocking the pain fibers from the myocardium, thus relieving the pain of angina pectoris, but not improving the prognosis.

1935 saw the introduction of surgical methods with the primary goal of increasing the blood flow to the myocardium. These were much more major operations than those required to resect pain fibers and therefore carried a higher operative mortality.

O'Shaughnessy, who believed the omentum to be a natural vascularizing material, devised an operation in which the omentum is pulled up through an incision in the left diaphragm and is grafted to the heart muscle. In 1937 he reported the use of cardio-omentopexy on six patients all of whom suffered from severe angina pectoris. All six obtained relief from angina after surgery and no serious post-operative complications were observed.

Strieder, Clute, and Graybiel reported the use of cardioomentopexy in two patients with severe

angina pectoris. Both of these patients had marked relief from pain after this operation. However, a diaphragmatic hernia several months later was a post-operative complication.

Other investigators tried lung grafts and muscle grafts, all claiming some degree of success for their operations; however these were performed on very few patients.

Samuel Thompson performed an operation on 10 angina pectoris patients which consisted of introducing under aseptic conditions anhydrous magnesium silicate (talcum powder) into the pericardial sac. The basis for this operation rests upon the formation of an adhesive pericarditis with the establishment of a collateral circulation from the pericardium to the heart muscle. Of the ten patients, two died suddenly about 48 hours post-operatively. The others recovered and showed marked improvement. Dr. Thompson was careful not to claim too much for the procedure, realizing that it was possible that the adhesive pericarditis might be of more detriment, eventually, to the patient than the lack of procurement of a source of blood for a damaged myocardium.

Vineberg reported experiments done on dogs which showed that the internal mammary artery when transplanted into the left ventricle develops anastomotic channels with the left coronary circulation after a sufficient period of time. He later tried this operation on patients with angina pectoris.

VI. AN ERA OF TRYING ANYTHING (1930-1950)

Just as the 1920's had been a period of popularity of surgical procedures for angina pectoris, 1930 brought a search for new methods of medical treatment. The various remedies tried in 1930 included a muscle extract, angioxyl (a pancreatic extract), insulin and glucose. These all had their proponents and opponents but none ever gained wide usage.

T. J. Coogan in 1934 reported the results on a group of 69 cardiacs with angina pectoris who were treated with theophylline calcium salicylate. Relief varied from partial to complete in 46 cases, or slightly more than 66% of the group. Hypertensives with angina were benefited most.

In 1940 the use of cobra venom in doses of 5-10 mouse units for relief of pain in patients with angina pectoris at rest was introduced. The drug

acted upon the higher nerve centers to produce its analgesia. This resulted in an increase in the exercise tolerance but no change in ECG.

Wilhelm Raab (1940) advocated roentgen irradiation of the adrenal glands. He studied 100 patients, 75 of whom showed subjective improvement after adrenal irradiation.

Studies were done on papaverine and theophylline aminoisobutanol. There were no demonstrable differences between these drugs and placebo therapy.

Waldman favored the use of testosterone propionate in the therapy of angina pectoris and claimed that it prevented ECG alteration in response to exercise.

Russek et al. compared the effects of ethyl alcohol and nitroglycerin premedication in preventing the ECG response to standard exercise. Alcohol had no effect on the ECG but was just as good at preventing pain as nitroglycerin. From this it was concluded that the action of alcohol in coronary disease is exclusively that of a rapidly acting sedative.

Numerous studies were done in 1950 on the effects of Visammin (Khellin) on angina pectoris. Some of these suggested that it was of great therapeutic benefit. Other investigators could demonstrate no difference between Khellin and placebo.

VII. A PERIOD OF MORE OBJECTIVE EVALUATIONS OF EXISTING DRUGS, CONTROLLED DOUBLE BLIND STUDIES, ETC. (1950-1960).

Perhaps the most notable thing about all of the studies done in the evaluation of the therapy of angina pectoris up until 1950 was that most of the studies were done on small series, with inadequate controls and purely subjective evaluations of benefit of therapy.

However, about 1950 there seemed to be an awakening to the need of having more controlled, carefully evaluated studies. J. E. F. Riseman and his co-workers probably contributed more to the evaluation of drug therapy of angina pectoris during this period than did anyone else. Their method of evaluation consisted of measuring the frequency of attacks in daily life, the number of nitroglycerin tablets consumed and especially the response to a standardized exercise tolerance test before and after treatment and during placebo administration.

In 1959 Dr. Riseman reported the results of

studies done over a 15 year period evaluating nearly every drug ever reported to be of benefit (nearly 100 drugs) in angina pectoris. They divided them into groups of those producing marked benefit, moderate benefit, or little or no benefit. The categories studies were nitrites, purines, sedatives, antimalarials, and miscellaneous drugs.

The nitrites appeared to be the most effective form of therapy available for the treatment of angina pectoris, especially when given sublingually. Nitroglycerin was the most effective short acting drug and erythrol tetranitrate appeared to be the most effective of those with prolonged action.

Russek, Zohman, and Dorset also made substantial contributions to the evaluation of therapy with coronary vasodilator drugs. They attempted to record and compare the ability of specific agents to modify the electrocardiographic response to standard exercise in carefully selected persons who had shown reproducible ECG changes in control studies.

In one study the ECG responses of 17 commonly used drugs were compared. Good responses were obtained in 100% of the patients who received glyceryl trinitrate, and in 70% of the patients who received pentaerythrol tetranitrate. Good responses to the other drugs were absent in most cases and negligible in a few.

Most of the studies done during this period were aimed at palliation of angina pectoris, with few attempts being made to find a "cure". Jackson in 1955 reported the use of an inositolcholine syrup which he hoped would decrease arteriosclerosis. However, in 40 patients there was no statistical difference between the choline-inositol and placebo treated patients.

VIII. A NEW LOOK AT THE SURGICAL TREATMENT OF ANGINA PECTORIS (1960).

Beck in 1958 reported a series of 347 patients who had undergone the operation to cause adhesive pericarditis. 295 were alive at the time of the report and of these 278 were reported to have had a good or excellent result.

Although this operation has been available for over 20 years, is relatively simple to perform and has been attended by a low morbidity and mortality rate, it has never gained wide acceptance.

In 1960 most of the surgical attention was focused on direct vision endarterectomy. The surgi-

cal mortality of this operation is high. If a partially occluded vessel is blocked during endarterectomy, it may lead to infarction and death. However, if the patient does survive the operation, then the results that have been reported have been excellent.

X. THE TRANQUILIZER-MOOD ELEVATOR AGE. A SEARCH FOR MECHANISMS OTHER THAN VASODILATATION FOR RELIEF OF ANGINA PECTORIS (1960-1965).

Cesarman in Mexico and later Cossio in Argentina observed that iproniazid appeared to relieve the pain of angina pectoris. These observations which have now been confirmed by others, led to a systematic search for similar compounds of greater efficacy and safety.

Various studies were done using isocarboxazid (Marplan), pivalylbenzhydrazine (Tersavid), and phenelzine sulfate (Nardil). These monamine oxidase inhibitors proved effective in relieving angina in some cases but had absolutely no effect on the ECG. In numerous other studies they were shown to be no more effective than placebos.

The use of MAO inhibitors both as mood elevators and in therapy of angina pectoris stimulated interest as to whether ataraxic compounds would have a similar effect. PETN-Atarax (Cartrax) and chlordiazepoxide (Librium) were studied and were found to relieve pain in angina patients who showed signs of emotional stress, but had no effect on the group of patients who were classed as emotionally stable.

In 1960 a new preparation, dipyridamole (Persantin), was shown to increase the coronary arterial flow in dogs. This drug was tried in therapy of angina pectoris and found to be no better than placebo therapy by most investigators.

Barnett and Brandstater in 1964 did pharmacologic studies on pronethalol (Alderlin) and proved that it was a beta adrenergic inhibitor capable of inhibiting the excitatory effect of the catecholamines on the heart. When it was tried in the therapy of moderate to severe angina pectoris no significant difference in effect on angina was shown between it and placebo.

Since 1960 various drugs which modify cholesterol and lipid blood levels have been suggested for the therapy of angina pectoris. Although some of these do cause a decrease in blood cholesterol and lipids, none have been shown to significantly

relieve angina pectoris.

SUMMARY

In summary it may be said that although angina pectoris has been a well described clinical entity for nearly 200 years we have yet to devise a cure for it.

The various therapies found to be of benefit over the years are at most palliative, and none have been found to change the prognosis of the disease.

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Teratogenesis-Oncogenesis

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Many parallelisms exist between teratogenesis and carcinogenesis. Somatic cell division is a prerequisite for both. Of the small number of compounds which have been bio-assayed for both effects, the majority have produced both malformations and cancer. The same compound may have different effects, dependent upon the stage of development of the organism at the time of exposure. Thus, a compound found to be carcinogenic to mature cells might be teratogenic to immature, embryonic cells. Some chemical agents given dur-

ing fetal life produce cancer which becomes obvious during postnatal life. A number of clearly stated hypotheses have been proposed concerning the mechanisms of carcinogenesis, including the concepts of somatic mutation, alteration of immune response, protein deletion, and altered regulatory circuits. A review of pertinent literature indicates that these hypotheses of carcinogenesis may be applicable to studies in teratogenesis. Evidence on the mechanism of a carcinogenic agent might be used to elucidate its possible teratogenic activity. Conversely, detailed studies in organogenesis which are required for teratology can serve as a framework for carcinogenic investigation.

BATTERED CHILD SYNDROME

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A number of states have enacted laws designed to require that a physician and others report cases of child abuse which are observed in the course of their professional practice with appropriate provisions protecting those so reporting against any civil liability arising out of complying with the statutory requirement.

A bill for such an act was introduced in the House of Representatives by Representative Joel Ledbetter of Pulaski County and Representative Doris McCastlain of Monroe County in the 1965 Regular Legislative Session. The bill was passed by the House and steered through the Senate by Senator Allen of Monroe County. It was signed by the Governor and became Act 25 of the Acts of the General Assembly of 1965.

Physicians and others observing children suffering from serious physical injury apparently resulting from abuse have hesitated to make reports to the appropriate civil authorities respecting the child's condition and the physician's diagnosis of physical abuse because of the very stringent laws concerning defamation of character existing in the various states in the United States. Any physician making such a report in the past has incurred the risk of a libel and slander suit by the parents of the child. The theory behind the enactment of the Battered Child's Statute is that if a physician is legally required to make a report to civil

authorities, the Legislature may confer an immunity to the physician from civil or criminal liability for the making of such a report, and with respect to participation in any judicial proceeding arising from such a report.

The statute also provides that every report pursuant to the Act is presumed to have been made in good faith. This presumption has important evidentiary value in the event of litigation. It is, of course, necessary that the physician-patient privilege established by law be made subject to the exception of reports required by the Act. The Act also eliminates the husband-wife privilege provided by statute as a ground for excluding evidence regarding the child's injuries or their cause.

Act 25 requires an oral report to the appropriate police authority by the physician to be followed by a written report giving the names and addresses of the child and the parents, the child's age and the nature and extent of the injury. Employees of hospitals and other institutions are required to notify the person or persons in charge of the institution rather than make a direct report to the civil authorities.

No case has been brought to the attention of the legal department where the battered child statutes have been invoked in other states. The statute is too young in Arkansas to have had legal tests.

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UTILIZATION COMMITTEES

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There is no doubt that we physicians will become more and more involved with utilization review control of hospital services. This is merely a by-product of the modern age in which we live. As medicine becomes more technical and complex it also becomes more impersonal. I thought the statement Dr. Payton Kolb made in his presidential address to the PCMS last month was very appropriate. He said "There are no more old timey doctors because there are no more old timey patients for them to serve." This of course reflects the many changes of our entire lives brought about by our present day communication and transportation system, the many highly specialized technical advances in medicine and especially the emergence of third parties that pay the bills for health care.

Historically physicians have been able to do a good job in voluntarily maintaining high standards and quality of medical care. In certain areas this has not always been easy. Our medical societies have profited by well disciplined Boards of Censors, Grievance Committees and the like. Our hospital medical staffs have reacted accordingly by organizing tissue committees, surgical control committees and records committees. The inauguration of these committees has sometimes met with grumbling and charges of interference by us

physicians. Nevertheless we have accepted these self imposed control measures and have jealously guarded against outsiders imposing an outside control.

We are now faced with the necessity of asking ourselves, "Are we properly utilizing existing hospital beds and nursing staffs in an economical manner and in such a way as to best benefit the entire community?" This is not a new problem but has been brought more sharply in focus recently by passage of the Medicare Law and reactions of insurance and other third parties to this problem. It is a matter of us doing this or having it done for us by outsiders. There is quite a bit of experience in this in certain areas of Michigan and Pennsylvania so that we in Pulaski County are not necessarily pioneering. The AMA has prepared an exhaustive manual of guidelines to follow.

Soon all hospitals in Pulaski County will develop such review committees and it is my hope they will be patterned after the AMA guidelines. The PCMS must take the lead and responsibility to help organize and coordinate these efforts, but even more important, to see to it that these committees are developed by capable and interested medical men, to guard against influence by outside people and forces, and to assure that findings will not be punitive or vindictive.

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Mechanisms of Inflammation

L. Grant and F. F. Becker (550 First Ave, New York), *Arch Path* 81:36 (Jan) 1966

A microburn was created by a laser beam on the luminal side of the endothelial wall of a small blood vessel in a rabbit ear chamber. The resultant injury took the form of a white thrombus caused by the adherence of white blood cells and platelets to the endothelial wall of the affected vessel. Histochemical studies of the lesion indicated that the material which caused the attach-

ment of the thrombus represents an altered form of a platelet or white cell, or some factor produced by either, or represents some form of fibrin. Evidence is offered that indicates an important role of the blood vascular endothelium in the pathogenesis of white cell and platelet sticking in inflammatory states. The method is highly reproducible, yielding a discrete injury that permits study of the formation, propagation, and dissolution of microthrombi in vivo over hours and day under physiological circumstances.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*
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Carcinoma of the Cervix in Young Women

Jack W. Harrison, M.D.*

INTRODUCTION

Statistically speaking, carcinoma of the cervix uteri is a disease of middle age. Bowing and McCullough² found the average patient age to be 49 years and Corscaden places it at 50.5 years.⁵ The treachery of statistics lies in the fact that one tends to forget or neglect the extremes of the range in dealing with a specific disease. The problems and rewards of managing cervical malignancy in older women has recently been explored by Lewis.¹¹ It is this author's belief that there are problems and rewards inherent in the management of this disease in women 25 years or less, and that these have not received due recognition in the literature or in the thinking of practicing physicians. Confronted by a middle-aged female complaining of heavy vaginal bleeding or discharge, it would be a rare physician indeed who failed to entertain the diagnosis of cervical malignancy. However, young women with the same symptoms are all too frequently treated with shots and pills before being given the benefit of a thorough examination. This study is presented in the hope of directing attention to a somewhat neglected group of patients.

HISTORICAL BACKGROUND

Medical literature is not replete with authors who have concerned themselves with cervical carcinoma in the young. Bowing and McCullough² in 1941 published a review of the literature which yielded 26 cases of cervical carcinoma in females under 20 years, with only 12 of these being proven.

They reported a single case in a 19 year old, which was the only one found in 3,000 cervical carcinomas treated at the Mayo Clinic. Their conclusion was that this lesion in young women was rare, and that it was quite frequently fatal.

In 1944, Morehead¹⁵ added five patients to this series, bringing to 17 the total of proven cases under age 20. At least 12 of these were adenocarcinoma of the cervix and 3 died. Three were of squamous cell origin and 2 died. Morehead concluded that youth is a factor in determining the type of tumor, and greatly alters the prognosis for that particular type.¹⁵ Pollack and Taylor¹⁶ added an additional case of cervical cancer in 1947 and again noted the overwhelming majority of adenocarcinomas in this age group, as well as the generally unfavorable prognosis.

Prior to 1961, these few case reports comprised all the known instances of cervical carcinoma in females under 20 years. Subsequently, Zaczek²⁰ in 1963 reported a case of mesonephric carcinoma in an 11 month old girl.

There now appears to be a trend toward an ever-increasing number of young women with carcinoma of the cervix. A reflection of this trend was a study by Ferguson in 1961.⁷ Out of 1,500 positive cytologies, 77 were found in patients under age 20. All these individuals were staff patients, of low socio-economic stratum, and several had had pregnancies at early ages. There was a preponderance of Negroes in this group. Only 10 of the 77 had never been pregnant. Of the 77 positive cytologies, 10 proved histologically to be intra-epithelial carcinoma and 20 were dysplasias of varying severity. No invasive lesions were

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found. It is significant that only 7 had bleeding abnormalities and 13 had a vaginal discharge.

Further confirmation of the trend was provided by Diddle and Watts⁶ in 1963. They found 94 patients under 30 years of age out of 1,567 with carcinoma of the cervix, for an incidence of 6.0%. Seventeen were in the 20-25 year group. They found that patient delay was largely responsible for the time lapse between onset of symptoms and proper treatment in the older patients, but physician error was the greatest factor in delay in the younger group (to age 30). The rate of error in diagnosis was three times greater in young women than in those age 30 or more.

PROCEDURE

A review was made of cases of cervical carcinoma diagnosed at the University of Arkansas Medical Center from 1943 through 1964. A total of 1,716 cases were found, of which 18 were 25 years of age or less. All of these patients had proven carcinoma, and all were followed for a minimum of five years or are still being followed in our Gynecological Tumor Clinic. These eighteen cases were analyzed and are presented with the objective of exploring several areas of interest:

- 1) Does the disease in young women follow the general trends of the older group regarding parity, socioeconomic strata, and early sexual activity?
- 2) What is the extent of the lesion when it is diagnosed in young women?
- 3) Is there a different pattern of cellular type, and is the disease more virulent than in the older group?
- 4) Does the age of the patient influence the treatment?
- 5) Is physician error a significant factor in the management of this lesion in this age group?

It must be emphasized that these 18 cases are not considered to be sufficient for valid statistical analysis. Our purpose is to examine trends in cervical malignancy in young women, and not an attempt to establish any criteria for diagnosis or management.

RESULTS

Age: The average age of the patients in the study group was 22.4 years with distribution as follows:

TABLE I

AGE	NO. OF PATIENTS
19	2
20	1
21	1
22	5
23	3
24	2
25	4
TOTAL	18

Average age of study patients—22.4 years

Average age of all patients with carcinoma of cervix—50 yrs.

Parity: Only one patient was nulliparous. She was married at age 20 and found to have adenocarcinoma of the cervix at age 22. Parity tables are as follows: 10 of 77 of Ferguson's series

TABLE II

Nulliparous	1
Primiparous	0
Multiparous	15
Grand multiparous (5 or more)	2

were nulliparous (13%). Of the 18 young women in the UAMC series, a total of 52 babies were born with an additional 8 abortions.

Age at time of marriage (or 1st parity): Ten of the patients were single. The average age of all patients at the time of marriage or first delivery was 16.8 years. The youngest was 14 at delivery and the oldest was 23.

TABLE III

Average age at marriage or first delivery—16.8 years

Youngest	14
Oldest	23

44.6% of all patients with carcinoma of cervix married before age 20.

Race: The UAMC clinic population is approximately 6:1 negro to white ratio. Various studies place the incidence of carcinoma of the cervix in Negroes at twice that in Caucasians.^{5,8} One study lists higher incidence in Caucasians than in Negroes.⁴ In our group there were 9 white and 9 negro patients.

Socioeconomic status: All but two of the patients were Welfare or staff patients. The remaining two were half-pay patients. Nothing is known of the patient's educational background.

Extent of lesion: A total of 12 lesions (66.6%) were invasive.

TABLE IV
STAGE NO. OF PATIENTS

0	6 (33.3%)
I	6 (33.3%)
II	2 (11.2%)
III	1 (5.5%)
IV	0
Undetermined but Invasive	2 (11.2%)
Adenocarcinoma of Cervix	1 (5.5%)

Treatment: All conizations were for intra-epithelial lesions in which the patient either desired more children or refused hysterectomy. One

TABLE V
Conization only 4
Irradiation 6
Hysterectomy 8

patient subsequently had a vaginal hysterectomy four years later at another hospital for causes unknown. The irradiation group includes those treated with intracavitary radium or transvaginal x-ray plus external irradiation. One patient received deep external x-ray therapy because of prior surgery. Five of the hysterectomies were of the radical Wertheim type.

STAGE	CONIZATION ONLY	HYSTEREC-TOMY	IRRADI-ATION
0	4	2	0
I	0	4	2
II	0	0	2
III	0	0	1
Undetermined (invasive)	0	1	1
Adenocarcinoma	0	1	0

Treatment correlated to stage: The clinical stage of the disease and the type of therapy are listed in the following table.

Survival by stage: The five year survival is listed in table VII.

STAGE	ALIVE	DEAD	% DEAD
0	6*	0	0
I	5	1	20
II	2	0	0
III	0	1	100
Undetermined	2	0	0
Adenocarcinoma	1	0	0

*One patient had total hysterectomy and is not yet 5 years post-op.

Three patients were lost to follow up, one at 6 years, one at 7 years, and one at 9 years. All were well with no evidence of recurrence at time of their last clinic visit and are therefore considered "cured".

Complications: Irradiation — all patients devel-

oped some degree of vaginal stenosis. The one patient irradiated transvaginally developed complete occlusion of the vault.

Surgery — one patient developed a ureterovesico-vaginal fistula and subsequently a left ureteral re-implantation was performed. She is alive and well five years post-operation.

Physician error: This area is difficult to evaluate statistically, but certain factors should be mentioned which are felt to be significant. Eight of the patients have no recorded Papanicolaou smear. The diagnosis on 6 of these was made at the UAMC on the basis of a suspicious cervical lesion. Four of these six had symptoms suggestive of genital malignancy. Three had abnormal bleeding and one had a significant discharge. The remaining two patients without cervical cytology were referred to the UAMC following hysterectomy (one total, one subtotal) for abnormal bleeding, with the diagnosis of malignancy having been made on pathological section. Of the 10 patients who had smears performed, one was negative and the other 9 were Class III or IV.

Five of the 18 patients were treated for periods of three, four, five, and eight months respectively for abnormal bleeding before a smear was done. Two were treated for cervicitis and three for "ovarian failure". One patient developed post-coital spotting two months after delivery and was treated intermittently for two years for cervicitis. She was referred to the UAMC where she was found to have a late Stage 1 lesion. Treatment was with intracavitary radium and external x-ray. Sixteen months later the patient died of widespread metastases.

DISCUSSION

The patients in the study group demonstrate the various clinical features of cervical cancer. Several authors have noted the frequency of early marriage, sexual activity, parity and low socioeconomic status associated with carcinoma of the cervix.^{4,5,12} Racial differences are felt to be more apparent than real, the main underlying factor being low socioeconomic status with its concomitant problems.

A surprising and disturbing number of the young women in this study were found to have invasive cancer. If one accepts the theory that squamous cell carcinoma of the cervix develops slowly over a period of years,⁸ then it must follow that these women bore the seeds of cancer from

a disconcertingly early age. There may be, on the other hand, some factor in the oncology of the cancers in young women which breaks down the "normal" pattern of carcinogenesis and allows a more rapid development than has been heretofore suspected. It certainly seems that investigators are going to have increasing opportunities to study cervical cancer in young women.

It is interesting that the series of Pollack and Taylor¹⁶ and Morehead¹⁵ all showed a distinct preponderance of adenocarcinoma, whereas in the present series there were 15 squamous carcinomas, one adenocarcinoma and two invasive lesions of undetermined type. There will almost surely continue to be the "museum piece" case of unusual cell type cancers in young girls, but it appears from this series that the vast majority of cervical cancers are squamous cell.

A final comment should be made concerning the two cases staged as "undetermined but invasive". One of these patients had total hysterectomy elsewhere and was found to have residual carcinoma prior to referral. The other patient came to our hospital in labor and delivered vaginally. A biopsy was performed immediately and the diagnosis of carcinoma confirmed by frozen section. A Wertheim hysterectomy with pelvic lymphadenectomy was carried out the following day.

As would be expected, there is a tendency toward the surgical approach to the treatment of cervical carcinoma in young persons. Conization was the sole form of therapy in four of the in-situ lesions because, as noted, the patient either refused more definitive surgery or desired an opportunity for further reproduction. The one patient who received external radiation therapy only had been treated by her referring physician for abnormal vaginal bleeding. A total hysterectomy was performed, and residual carcinoma was found in the surgical specimen. External therapy was given, and the patient is alive and well 9 years post treatment. This series is too small to warrant statistical analysis of treatment methods.

Of the two patients who died, one was the late Stage I mentioned earlier. The other had a stage III lesion, was treated by internal and external irradiation and refused to come to clinic. She was found to have died at home, presumably of carcinoma, 28 months post-therapy. Of the surviving patients, one is 14 months post-therapy

and one is 26 months post-therapy. The average survival time at present is 99 months. One is not justified in drawing any sweeping conclusions regarding survival in such a series, but it does appear that cervical carcinoma in this age group is not necessarily so fulminating as has been concluded in other series.

The facts presented here regarding physician error were not intended as an indictment of any person or group. They were merely cited to point up a very real tendency by all physicians to think of cervical cancer late in the course of treating young women with genital problems. It is the author's sincere hope that by reemphasizing this pitfall, he might stimulate someone to "think cancer" in young women as quickly as he would his middle-aged patient.

It seems that there are an increasing number of young women afflicted with this disease. In the 11-month period since January 1965, there have been at UAMC 5 new proven cases of cervical carcinoma in women under 25 years of age. The reasons for this increase are undoubtedly multiple, and may be as much a reflection of our times as they are purely scientific phenomena. The average age at time of marriage is decreasing, and young brides frequently become young mothers (or vice versa). That promiscuity is on the rise would seem to be indicated by the fact that teenagers are currently the leaders in the carrying and dispensing of syphilis in the United States.¹⁹ It is generally conceded that low socioeconomic status, promiscuity, and parturition all play important roles in the development of cervical cancer.^{3,12} The oncology of this lesion is far from being fully delineated, and the young women of the world are sure to provide an increasing field of study.

Christopherson³ states that in smears of 5,061 teen-aged females, not a single malignancy was uncovered. He suggests that it is economically infeasible to attempt large scale cervical smear programs in this age group. After observing what appears to be a definite trend in cervical carcinoma and considering the cost of treating invasive lesions, the author suggests that it is economically infeasible *not* to do routine smears on this age group. Wholesale cytopathologic programs have proven effective in reducing the incidence of and mortality from cervical carcinoma.^{13,17} Routine pelvic exams are known to be invaluable in dis-

covering unsuspected lesions. We do not believe there is just cause for withholding either from a patient because of her age. We join Allen¹ in strongly urging that females be educated to seek routine pelvic examinations, including smears, from adolescence.

SUMMARY AND CONCLUSIONS

Eighteen cases of cervical carcinoma in females 25 years and less are presented, as well as historical background of this lesion in young women.

The patients were found to follow closely the pattern of parity, low socioeconomic status, and early sexual activity.

A high percentage of invasive carcinoma was found, with extension outside the cervix in five patients (27.7%). This would indicate a fairly significant delay on the part of the patient, the physician, or both.

The preponderance of patients in this series had squamous cell lesions (94.5%) and two patients in the group died (11.1%).

Treatment was primarily surgical in the early lesions, and radiological in the more advanced lesions. Conization alone was the sole treatment in four cases of intra-epithelial carcinoma.

Physician error was found to be a significant factor in this age group, with failure to do cytopathologic smears and delay in diagnosis being outstanding features.

A plea is made for the inclusion of young women in cervical cancer screening programs and for the routine pelvic examinations of young patients.

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TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



Obstruction of the Superior Vena Cava

John D. McCracken, M.D.*

Although superior vena caval obstruction may produce a classical disease entity, it occurs uncommonly enough and in such varying patterns to occasionally escape diagnosis. Congestive heart failure, angioneurotic edema, allergic blepharitis, lymphedema, obesity, and nephritis are a few of the misdiagnoses which may mislead the unsuspecting clinician. It is the purpose of this review to refresh the reader with the historic, anatomic, etiologic, diagnostic and therapeutic aspects of this challenging clinical entity.

HISTORICAL REVIEW

In 1757, William Hunter described and illustrated the postmortem findings in a man who died on October 29, 1752. ". . . The common trunk of the left subclavian and jugular vein (were) both compressed by the aorta."¹ This is probably the first described case of superior vena caval obstruction caused by an aneurysm. McIntire and Sykes² found in the writings of Thomas Bartholinus in 1740,³ reference to a man who died from suffocation and in whom a "small bit of flesh with shapeless fat in the orifice of the

vena cava" was present.

In 1902⁶ and 1903,⁷ William Osler described three cases of superior vena caval obstruction caused by aneurysm. Hodgkin's Disease and fibrous obliteration, and included a diagram of the collateral circulation considered to be present in the last case.⁷ In 1904, Fischer⁴ summarized 252 cases which had been reported to that time. McIntire and Sykes,² in 1949, published an excellent review of the literature from 1904 through January, 1946 listing 250 cases and adding two of their own. Numerous additional articles on the subject have appeared since then.

ANATOMY OF THE SUPERIOR VENA CAVA^{8,9}

The superior vena cava forms by the convergence of the two innominate veins at the inferior border of the first costal cartilage, and terminates in the right atrium at the level of the third right costal cartilage in front and the seventh thoracic vertebra behind. It measures seven to eight centimeters in length in the adult. Somewhat less than half of the vessel is contained within the pericardium, which reflects obliquely over it just below the entrance of the azygous vein posteriorly. Its only other tributaries are small veins from the mediastinum and pericardium.

The superior vena cava is in close relationship to many major intrathoracic and mediastinal structures. In front, it is covered by the thymic remnant and is overlapped by the right pleura and lung. Behind, are the azygous vein, the right pulmonary artery, and the superior right pulmonary vein. To the right side, are the right lung

TABLE 1
ETIOLOGY OF SUPERIOR VENA CAVA OBSTRUCTION

Etiology	1904	1904-1946	1946-Present
Neoplasm	50%	37.6%	75%
Aneurysm	36%	24%	6.1%
Mediastinitis	6%	24.8%	11.2%
Others	2.5%	4.4%	6.1%
Total	100%	100%	100%

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and pleura, and the phrenic nerve; and, to the left side, the ascending aorta and innominate artery. Several groups of lymph nodes are in the intimate proximity, including the right superior set of anterior mediastinal nodes (which lie near the phrenic nerve), and the peritracheal and right peribronchial nodes. The superior vena cava is effectively encased by the lymphatic system which drains the structures of the entire right and lower left thoracic cavities.¹⁰⁻¹²

COLLATERAL CIRCULATION

The collateral circulation of the superior vena cava is abundant. There are four major systems involved, each of which intercommunicates with the others.^{2, 8, 13-15}

Azygous route. The azygous vein, which normally empties into the superior vena cava, receives blood from: a), the right ascending lumbar vein; b), the right intercostal veins, except for the superior two or three which enter the superior intercostal vein, which then empties into the azygous vein; c), the hemiazygous vein, which with the accessory hemiazygous vein and the left superior intercostal vein, communicates with the left intercostal veins; and, d), small esophageal and posterior mediastinal veins. The left superior intercostal vein also frequently communicates with the left innominate vein. The lumbar veins communicate with the common iliac veins and the inferior vena cava.

Internal mammary route. The internal mammary veins normally empty into their respective innominate veins. In superior vena caval obstruction, however, the flow is reversed, and blood is carried to the lower part of the body through the many communications of the internal mammary veins. These communications include: a), the intercostal veins, which communicate with the azygous system and intervertebral veins; b), the superior epigastric veins; c), musculophrenic veins; and, d), by perforating branches to the superficial veins of the thorax.

Vertebral route. This system consists of a complex, interconnecting group of internal and external vertebral venous plexuses. There are communications with: a), the dural sinuses; b), vertebral veins (which empty into the innominate veins); c), intercostal veins; and, d), lumbar veins.

Lateral thoracic route. The superficial veins of the upper thorax form a diffuse plexus, the major named vessel being the lateral thoracic



FIGURE 1

PA film of the chest demonstrating right hilar mass with secondary atelectasis of the anterior segment of the right upper lobe.

vein, which empties into the axillary vein. This plexus communicates with the subclavian veins above; and, below, to the thoracoepigastric, superficial epigastric, and superficial circumflex iliac veins. Perforating branches communicate with the internal mammary veins in front, the intercostal veins laterally, and the posterior external vertebral venous plexus behind.

LOCATION OF OBSTRUCTION

Obstruction of the superior vena cava may occur at one of three anatomical sites: 1), above the azygous orifice; 2), adjacent to the azygous orifice; and, 3), below the azygous orifice. The collateral circulation varies with each location.^{2, 13, 14} When the obstruction is above the orifice of the azygous vein, this vessel becomes enlarged and is the principle venous trunk through which blood returns to the heart from the upper part of the body. The intercostal veins receive blood from the mammary veins, upper vertebral plexuses, and, by perforators, from the superficial thoracic plexus. The communications with the inferior vena cava through the lumbar and superficial abdominal veins are not particularly well developed.

When the obstruction includes the azygous orifice, this vessel does not enlarge, and the flow of blood is reversed. The other three routes are the most important, and superficial veins become strikingly distended.

An obstruction below the azygous orifice results in a shunting of blood through all routes, but conspicuously so through a massively enlarged azygous vein, in which the direction of flow is reversed.

The effects of acute occlusion of the superior vena cava have been determined in dogs. Occlusion above the azygous orifice is well tolerated, and an extensive collateral circulation develops.¹³ Occlusion below the azygous orifice is poorly tolerated, all animals dying within four hours with venous pressures up to 65 mm Hg, arterial hypotension, elevated spinal fluid pressure, cerebral edema, and fluttering of the EEG patterns.^{13,17,18} One case of acute vena caval obstruction following cardiac surgery terminated fatally with cerebral edema and brain infarction.¹⁹ In dogs, occlusion below the azygous orifice is tolerated for periods up to two hours.^{17,18} Clamping of the superior vena cava was tolerated in one patient for

forty minutes during resection and graft replacement.²⁰

ETIOLOGY

The major causes of obstruction of the superior vena cava are neoplasm, aneurysm, mediastinal inflammation, and thrombosis. (See Fig. 1)

Neoplasm. Neoplasms are currently responsible for three-fourths of all superior vena caval obstructions. All but a very few are malignant, and almost 85% of these are carcinomas of the lung and bronchi.

Benign intrathoracic tumors causing superior vena caval obstruction are distinctly unusual. The list includes "benign" teratomas,^{21,33,38} intrathoracic goiters,^{28,37} and chemodectomas.⁴³

Of pulmonary tumors causing superior vena caval obstruction, about 80% arise in the right lung, with the right upper lobe and right main-stem bronchus predominating.^{23,29,37,64} Szur²⁹ found superior vena caval obstructions in 14.6% of 732 patients with carcinoma of the bronchus. Roswit, Kaplan, and Jacobson²³ reported an incidence of 15% in patients treated with irradiation, and Schechter,²⁵ 11% of 210 cases of proven bronchogenic carcinoma. Steinberg and Dotter⁶⁵ found involvement of the superior vena cava in varying degrees in 17% of one hundred patients studied angiographically preoperatively. The pulmonary tumors causing superior vena caval obstruction are generally of the anaplastic variety with unusual growth potential.^{23,37,64} Postmortem examination of vena cavae obstructed by these tumors reveals the wall to be directly invaded in almost all cases, rather than merely compressed by contiguous tumor or occluded by thrombus.^{23,25,33,64,65} Rosenbloom⁶⁴ found that seven of eight patients with bronchogenic carcinoma died three to ten weeks following onset of superior vena caval obstruction. The outlook is indeed bleak in this group.

Other malignant tumors represent only a mere handful by comparison. It is notable that lymphoma is being reported less frequently as a cause of superior vena caval obstruction, perhaps because of earlier diagnosis and effective treatment, and because of the increase of pulmonary cancers.

Surprisingly, metastatic tumors only infrequently obstruct the superior vena cava. This group includes testicular teratoma,⁵ hepatoma,³² neuroblastoma,²¹ fibrosarcoma of the thigh,⁵⁶ and



FIGURE II

Tomograms illustrating calcification and right hilar mass with narrowing of the right upper lobe bronchus.



FIGURE III

Superior vena cavagram illustrating obstruction of the left innominate veins with some collateral filling.

thyroid,²³ pancreatic,²³ cervical,³³ mammary,^{23,37} and adrenal carcinomas.

Aneurysm. Although many textbooks still list aneurysm of the aorta and innominate artery as a frequent cause of superior vena caval obstruction, the incidence has dropped considerably since the onset of effective anti-syphilitic therapy. They occur almost exclusively in males, and are almost always syphilitic.

Mediastinitis. Mediastinitis was responsible for 11.2% of superior vena caval obstructions in the current series, which marks a decline from McIntire and Sykes' report of 24.8%. Fischer's figure of 6.0% may have been due to the paucity of diagnostic methods for syphilis and tuberculosis before the turn of the century, and "chronic fibrosing mediastinitis" was not described until after his review.²

Syphilis,^{32,47,58} tuberculosis,^{25,32,33,54,49} and histoplasmosis^{37,62} have been indicated in some cases for the chronic mediastinal inflammation which, in the subacute stage, consists of dense granulomatous lesions, and gradually becomes matted, fibrosed and collagenous. Occasionally only a few constructing bands of fibrous tissue remain. Often, however, the responsible agent is not identified or suggested by smears, histologic sections, culture, skin or serological testing.^{37,63} A history of recurring respiratory infection is often obtainable in many of these obscure cases.² There are also reports of mediastinal fibrosis with superior vena caval obstruction following irradiation to the mediastinum.^{31,53}

Thrombosis. Thrombosis of the superior vena cava is a rather unusual occurrence as an isolated event, albeit contributory in the other three groups. Thrombosis has been described following trauma,^{21,31,53} carbuncles of the chest, and in association with cardiac disease, silicosis and tuberculosis endophlebitis.²

SEX AND AGE INCIDENCE

Obstruction of the superior vena cava is a male problem in a ratio of about four to one. Fischer⁴ found that 71.3% were males. McIntire and Sykes² reported 79.5% males. Some of the male predominance may be due to the increasing incidence of bronchogenic carcinomas as the etiologic agent. Slightly over 70% of cases were in the 30 to 60 year age group, the fifth decade being the most common. Fischer found three cases below the age of ten years, and McIntire and Sykes only one.

SYMPTOMS AND SIGNS^{2,5,21-23,32,37}

Increased venous pressure in the areas of the body drained by the superior vena cava produces the clinical picture associated with superior vena caval obstruction. The severity of symptoms and conspicuity of signs depend on the completeness and abruptness of the occlusion, and extent of development of collateral circulation.

The patient may complain of puffiness of the face and eyelids, which is most marked on arising in the morning and improves during the period of erect posture. Shirt collars become tight. There may be tinnitus, dizziness, fainting, and a fullness in the head, aggravated by stooping or bending over. Epistaxis may occur. Dyspnea is often present in more severe cases, the best explanation for which is venous stasis and resultant accumulation of metabolites in the respiratory center. Unusual presenting signs have included bleeding esophageal varices,⁵⁹ hydrocephalus in an infant,⁶² and Jacksonian epilepsy.

If the obstruction develops suddenly, spinal fluid pressure rises rapidly. Cerebral edema results in faulty cerebration and even coma.⁵ Glottic and laryngeal edema may be terminal events.

The soft tissues of the head, neck and upper extremities are swollen. The eyes tend to bulge, and conjunctival edema may be present. Venous engorgement results in a ruddy cyanosis which is exaggerated by coughing, straining, lying down, or bending over. The peripheral venous system

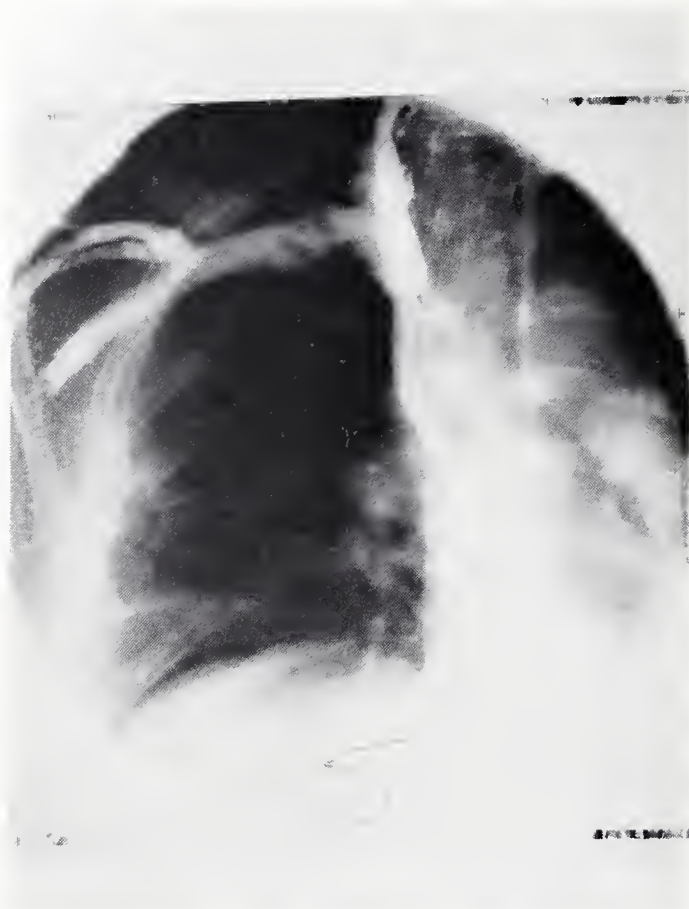


FIGURE IV

Postoperative superior vena cavagram illustrating flow of contrast media from superior vena cava into the right atrium.

responds to the obstruction by dilatation of the superficial veins of the trunk. This is especially well demonstrated by infrared photography. Telangiectasis over the anterior chest and upper abdomen is common. Extensive tumor may cause Horner's syndrome, vocal cord paralysis, and widening of the mediastinum. Estimation of venous pressures in the upper and lower parts of the body is the most important feature in reaching a sound preliminary diagnosis.

DIAGNOSIS

Superior vena caval obstruction is suspected on the history and physical findings, and confirmed by direct measurement of venous pressure in the upper and lower parts of the body. Normal venous pressure in the antecubital vein ranges from 50 to 150 mm. of normal saline.²² It rises slightly during expiration (increased intrathoracic pressure), and falls during inspiration (decreased intrathoracic pressure). Venous pressure in the femoral veins, on the other hand, rises slightly during inspiration and falls during expiration (decreased intra-abdominal pressure during passive expiration). The finding of a rise during in-

spiration in the upper extremity venous pressure suggests that blood is being drained to the inferior vena cava.

Another supplemental observation of venous pressure is the exercise test. The hand is forcefully opened and closed for one minute, while measuring the venous pressure in the arm. The increase in blood flow is normally well-accommodated by venous dilatation, venous pressure remaining stable, even in the presence of heart failure. If there is proximal venous obstruction, however, venous dilatation is already at a maximum, and venous pressure usually rises more than ten mm. of saline. Moreover, the rate of rise during exercise and the rate of fall on cessation of exercise give an indication of the degree of completeness of the occlusion and the state of development of the collateral circulation. Decholin circulation time is prolonged.²⁸

When the etiology of the obstruction is a mediastinal mass, conventional chest roentgenograms will demonstrate a widening of the mediastinum, particularly in the antero-superior compartment. A pulmonary neoplasm may be seen as a separate lesion, often in the right upper lobe or as a contiguous mass in the hilum. Hilar and mediastinal calcific shadows are suggestive of a chronic inflammatory process. Laminography may be helpful in the delineation of the mediastinal structures.

The techniques and value of phlebography to demonstrate the site of obstruction and the nature and extent of the collateral circulation have been described by several authors. The technique consists essentially of the injection of radiopaque material into a proximal vein, usually one or both antecubital veins, with appropriately timed exposures, preferably in rapid succession. When an aneurysm of the aorta or innominate artery is suspected, confirmation by aortography is desirable.

Additional information may be obtained by the study of sputum cytology, which should be positive in a bronchogenic carcinoma sufficiently advanced enough to result in superior vena caval obstruction. Bronchoscopy may be undertaken in cases where glottic and laryngeal edema are not present. Lymph node biopsy can become a major undertaking (as can tracheostomy) in the presence of marked venous hypertension, but may be very helpful when enlarged nodes are clearly palpable.

Skin tests and sputum culture are only infrequently helpful.

TREATMENT

The indication for therapy depends on the severity of symptoms and prognosis, which in turn depend upon the site and completeness of the obstruction, the rapidity of onset, the ability of the patient's collateral circulation to assume the task of transporting the obstructed blood, and the responsible etiology. Obstruction of the superior vena cava is not necessarily incompatible with long life, provided, of course, the etiology is not malignant. McCord, Edlin and Block⁴⁸ described a patient who was alive 50 years following onset of the obstruction. Glushien and Mansuy⁶⁷ reported a patient after 36 years, Bruckner³² after 28 years, and Murdock and Will⁵⁸ after 28 years.

Symptomatology may be improved by the administration of diuretics, elevation of the head of the bed, and, in severe cases, by phlebotomy.² A significant number of cases will improve spontaneously as adequate collateral develops and should recannulation of a thrombosed vessel occur. Nevertheless, a significant proportion of patients remain moderately to severely symptomatic and are grateful indeed if their obstruction is relieved. Specific therapeutic measures include irradiation and chemotherapy (for malignant obstructions), and various surgical procedures.

RADIOTHERAPY AND CHEMOTHERAPY

These measures are obviously designed for patients with malignant obstruction of the superior vena cava. Roswit, Kaplan and Jacobson²³ reported a satisfactory remission of symptoms in 76% of 36 patients. They employed tumor doses averaging 3,600 r in most of their patients, using nitrogen mustard (.3 to .4 mg/Kg) when irradiation was unfeasible or ineffective. The average remission was ten weeks, and the longest was one year. Effler and Groves³⁷ reported the survival for one year of eight patients, with two still alive after four years, following cobalt-60 teletherapy. (The tumor types were not stated, however.) On the other hand, Calkins²⁸ found that irradiation added little or nothing to comfort or survival. Favorable results for irradiation in lymphoma³² and malignant thymoma²¹ are reported, possibly because the mode of obstruction is usually compression rather than direct invasion.

Interestingly, Schechter and Ziskind⁶⁶ described the postmortem pathological findings in patients who had clinically benefited from irradiation

and/or chemotherapy, discovering that the vena caval walls were infiltrated with tumor and obstruction was complete in all cases. They suggested that "a good clinical response in vena caval obstruction due to carcinoma and other infiltrative diseases depends on the efficiency of the collateral circulation, chiefly the azygous vein."

SURGICAL PROCEDURES

Certain selected cases of superior vena caval obstruction are amenable to surgical attack, for which a number of procedures have been devised. The simplest situation is when the obstruction is caused by a fibrous band, sometimes at the pericardial reflection, division of which affords relief.^{16, 21} Mediastinal decompression, resection of granulomas, tumors or fibrous masses, endvenectomy, and replacement of by-pass of the superior vena cava are other occasionally effective procedures.

Mediastinal Decompression

The first record of a surgical procedure for superior vena caval obstruction would seem to be that of Guleke's, who, in 1929, reported the relief of symptoms following median sternotomy in a case of an obstructing aortic aneurysm.⁶⁸ In 1934, Ehrlich, Ballon and Graham⁵ described the case of a comatose 24-year-old female with superior vena caval obstruction caused by Hodgkin's disease. The right fourth and fifth costal cartilages were excised in their entirety and a small amount of tumor removed. In less than three hours following surgery the patient regained consciousness, and within 24 hours the patient's head and arm edema had disappeared. Higginson⁵⁶ reported transient relief in a case of metastatic fibrosarcoma.

Excision of Granulomas, Fibrous Masses and Tumors

In 1936, Ochsner and Dixon⁶⁹ reported a case of superior vena caval obstruction caused by post-traumatic fibrosis. Constructing scar tissue was resected, with a drop in venous pressure and marked clinical improvement. Others have subsequently reported success with resection of fibrotic mediastinal tissue,^{2, 55, 60} while other attempts have been unsuccessful.⁴⁶ Effler and Groves³⁷ have stated that they do not advise surgical treatment in cases of chronic mediastinitis with superior vena caval obstruction, but suggest "prophylactic" resection of granulomatous mediastinal nodes and tissue during the subacute phase—before dense scarring has taken place. They claim

that in no instance has the pleural cavity been contaminated by spilled nodal content, nor has superior vena caval obstruction subsequently occurred.

Klassen, Andrews and Curtis²¹ reported the successful resection of an obstructing mediastinal teratoma. Complete relief of symptoms resulted. An obstructing syphilitic aortic aneurysm has been successfully resected and grafted, again with relief.⁴⁵

Endvenectomy

Four cases have been reported in which occluding material within the lumen of an obstructed vena cava has been surgically removed. In 1954, O'Neill⁷⁰ reported his surgical procedure on a female patient who had had symptoms of superior vena caval obstruction for almost ten years. At operation a woody mediastinitis was found. The superior vena cava was opened and the "well-organized scar of thrombus-like material was rongeured from the inside of the vein." This procedure resulted in relief of symptoms. A similar procedure was performed by DuBost⁷¹ with success. Templeton³⁹ reported two cases of endvenectomy of the superior vena cava. In one, dense fibrotic material was excised from within the vessel with return of a venous pressure of over 300 mm saline to normal and successful follow-up three years later. In the second case, malignant tumor was removed from within the vein. Relief was obtained for one year before recurrence.

Replacement and By-pass by Graft

a. Clinical experience. An increasing number of cases in which the superior vena cava has been replaced or by-passed have appeared in the literature since Klassen, et al.²¹ reported a case in which the patient's own superficial femoral vein was used to establish a shunt between the azygous vein and right atrium. The graft was patent by phlebography six months later. A series of clinical cases in which a graft was employed to replace or by-pass an obstructed or resected superior vena cava has been reported. Although the list has a higher percentage of successes than failures, it is not unreasonable to assume that a higher percentage of the former are more likely to be reported. Schramel and Olinde's case⁷² represented an interesting operation in which the saphenous vein was mobilized in the leg and the distal end anastomosed to a dilated external jugular vein. The patient experienced relief of the vena caval obstruction until succumbing to his malignancy.

b. Experimental replacement of the superior vena cava. Perhaps a more accurate appraisal of caval grafting and choice of material might be possible from a review of experimental studies. Most of the work has been performed in dogs. The best materials appear to be autogenous vein, autogenous thoracic aorta (obviously impractical in man), Teflon, and rigidwoven Dacron. Several factors appear to increase the likelihood of success: meticulous anastomotic technique, synthetic tubes should be of large diameter and of rigid material or externally supported, ligation of the azygous vein in dogs to increase the flow through the graft, and end-to-end anastomoses. It is also of interest that autogenous vein grafts may recanalize after initial thrombosis.⁴⁰ Of supplemental interest, Riberi, Pompey and Hritz¹⁰⁸ successfully patchgrafted the superior vena cava in twelve dogs with fine mesh nylon.

SUMMARY AND CONCLUSIONS

Obstruction of the superior vena cava is an interesting, multifaceted, and challenging disease entity. The first case was recorded by William Hunter in 1757. Since then about a thousand cases have appeared in the literature.

The anatomy of the superior vena cava is such that it is vulnerable to disease processes involving the ascending aorta, innominate artery, several groups of lymph nodes, thymus, tracheobronchial tree and the right lung. Collateral circulation of the superior vena cava occurs via four principal routes: the azygous, the internal mammary, the vertebral, and the lateral thoracic (superficial) routes. Each of these intercommunicates with the others.

Obstruction of the superior vena cava may occur at one of three sites: above the azygous vein orifice, at the azygous orifice, or below the azygous orifice. The development of collaterals through the various routes will vary with the site and completeness of the obstruction. Obstruction at or below the azygous orifice will result in reversal of blood flow in the azygous vein.

There are four main causes of superior vena caval obstruction: neoplasm, aneurysm, mediastinitis, and thrombosis. Neoplasms currently account for approximately three-fourths of the cases, 90% of which are due to carcinoma of the lung. The site of origin of the pulmonary tumors is most frequently in the right lung, particularly the right main stem bronchus and right upper lobe.

They tend to be of a highly malignant, anaplastic type.

Symptoms and signs of superior vena caval obstruction result from venous hypertension in the upper trunk, head and arms, consisting essentially of venous distention, cyanosis, edema and pain. Severity of the symptoms will depend upon the abruptness of onset, extent and completeness of the obstruction, and state of collateral circulation. Common complaints include increase of shirt collar size, dizziness, fainting, fullness in the head, tinnitus, and puffiness of the face and eyes. Many of the symptoms are aggravated by stooping or bending over.

Diagnosis is made by direct pressure measurements. The venous pressure in the upper half of the body is higher than below, and may have the fluctuation characteristics of the inferior vena cava during respiration. The site of obstruction and extent of collateral circulation may be determined by phlebography. Work-up to determine the etiology of obstruction may variably include the following: chest roentgenograms, mediastinal laminograms, angiocardiology or aortography, bronchoscopy, sputum cytology, skin tests, and, in selected cases, thorocotomy. It has been suggested that if the syndrome has been present for more than six months, the etiologic agent is benign.⁵²

Treatment is variable. Many cases will improve spontaneously as collaterals develop. Symptomatic measures include diuretics, elevation of the head of the bed, and, in severe cases, phlebectomy. Radiotherapy and chemotherapy have been advised for most malignant obstructions, although there is evidence to suggest that once the superior vena cava is invaded by tumor radiotherapy will not reopen it. Selected cases may respond favorably to surgical measures, which have included division of constricting bands, resection of compressing masses, mediastinal decompression, endvenectomy, and vena caval replacement or by-pass.

Following is a typical case of mediastinal fibrosis with the superior vena cava syndrome.

CASE HISTORY

This 35-year-old white male presented to the University of Arkansas Medical Center February 18, 1965, at which time he gave a five month history of shortness of breath, swelling of the face, and tightness of the neck. He smoked two packs of cigarettes a day for fifteen years. He com-

plained of mild cough, but denied hemoptysis and weight loss.

Physical examination revealed marked swelling of the face, neck and upper extremities with venous engorgement above the clavicles. Auscultation of the heart and lungs were normal.

Laboratory findings were normal, except for an upper extremity venous pressure of 450 mm. of water. Chest films were abnormal as illustrated.

Hospital Course: Preoperative studies included bronchoscopy, sputum cultures, bronchial washings, planograms and venograms. A right thorocotomy was performed on March 25, 1965, at which time there was an 8 x 6 cm. fibrous tumor mass surrounding the esophagus and trachea with direct invasion of the superior vena cava with azygous vein obstruction. A benign process (idiopathic mediastinal fibrosis) was found on frozen section. A teflon graft was anastomosed from the superior vena cava to the right atrium. Postoperatively the patient did well and showed marked improvement of symptoms. Postoperatively venous pressure was recorded at 200 mm. of water.

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Cortisone-Glucose Tolerance Test: Influence of Age on Performance

T. Pozefsky and R. Andreas (National Heart Institutes, Baltimore City Hospitals, Baltimore), *Ann Intern Med* 63:988-1000 (Dec) 1965

Cortisone-glucose tolerance test was performed in 74 active, community dwelling males, aged 21 to 95 years. Sixty-one of the patients had negative family histories of diabetes mellitus, and 13 had positive family histories. None of the subjects had known diabetes mellitus nor symptoms of the disease. Fasting blood glucose concentration was elevated by cortisone administration. Sensitivity to this hyperglycemic effect increased with age. Blood glucose levels, measured at 20-minute inter-

vals for two hours after oral glucose administration, increased with advancing age at each time period during the second hour of the test. The two-hour blood glucose concentration increased by 17.6 mg per 100 ml per decade of life among subjects with no family history of diabetes. The effect of age was evident throughout the entire adult life span. Because the age-related impairment of performance is virtually universal and quantitatively large, the application of criteria to older subjects for normality derived from young adults results in an inordinately high percentage of abnormal results. A nomogram is proposed which would permit the interpretation of an individual's performance in terms of percentile rank among his age group.



ELECTROCARDIOGRAM

OF THE MONTH

AGE: 65 SEX: M BUILD: Medium BLOOD PRESSURE: 140/80

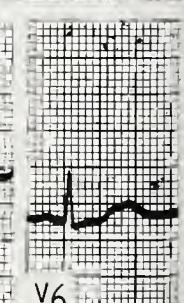
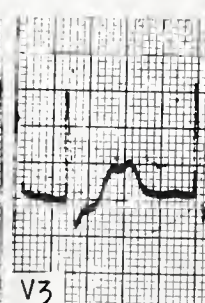
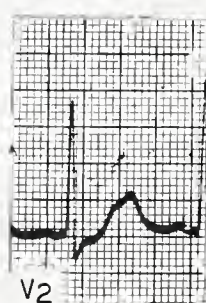
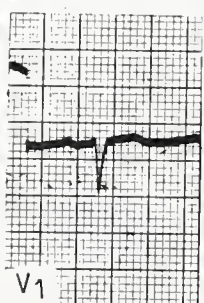
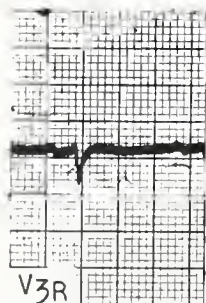
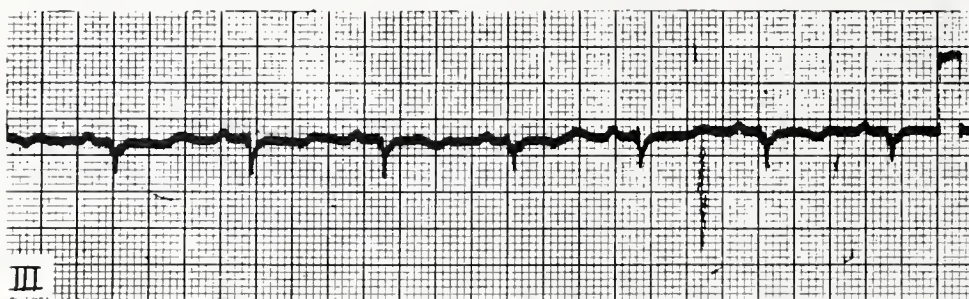
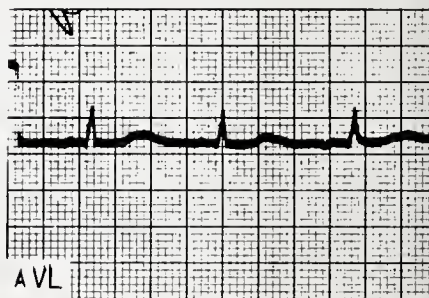
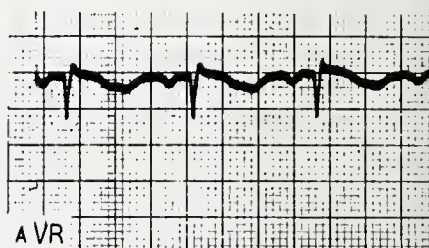
CARDIAC DIAGNOSIS: None

OTHER DIAGNOSES: Severe esophagitis and gastritis due to unknown cause.

MEDICATION: None.

HISTORY: Admitted acutely ill in severe electrolyte imbalance.

ANSWER ON PAGE 442



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 442



17-22-44

52-year-old male

HISTORY: The patient had a right perinephric abscess which drained spontaneously through the right flank leaving a fistula which would not heal. He had active pulmonary tuberculosis.

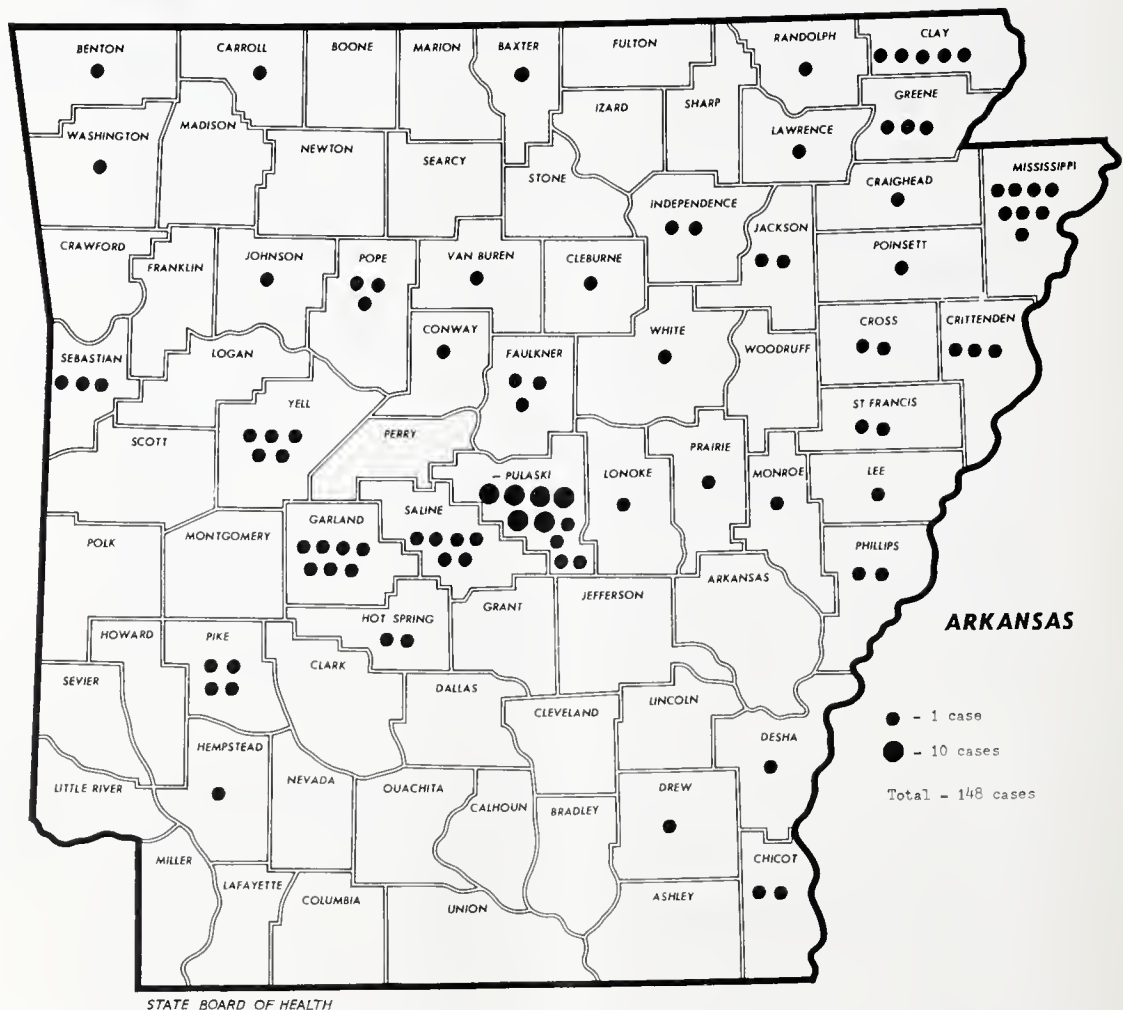


SEMINAR ON SALMONELLOSIS

The Arkansas Public Health Association, in cooperation with the Communicable Disease Center, U. S. Public Health Service, Atlanta, Georgia, has completed plans for conducting a salmonellosis seminar at its 18th annual meeting. This seminar on salmonellosis will be presented at the Velda Rose Towers, Hot Springs, Arkansas, May 17, 1966, from 1:30 p.m. to 4:30 p.m. Since this subject is of world-wide importance and interest, an alert program committee has devoted considerable effort in setting up this seminar.

Salmonella are everywhere. Arkansas, like many other areas, is faced with an ever-increasing incidence of salmonellosis. Thus, the program committee of the Arkansas Public Health Association was motivated to present the above mentioned seminar. The seminar should bring out many important aspects of salmonellosis as a public health problem. The speakers have been carefully selected because of their interest and knowledge of this particular problem. Special emphasis will be placed on control of this group of bac-

SALMONELLOSIS - 1965



terial diseases which commonly causes a gastro-enteritis, sometimes fatal, especially when septicemia or enteric fever occurs. The seminar will cover new methods of investigations, laboratory procedures, collection and handling of specimens, and epidemic patterns including hospital infections. A literature packet will be distributed to each person in attendance at the seminar which contains up-to-date reference articles on salmonellosis. There will be an exhibit on salmonellosis which will be both interesting and informative.

If we judge human salmonellosis in Arkansas by the number of suspected infections and illnesses which we think occur or by the number of reported cases, it is a very important disease in either situation. Accurate incidence figures are very difficult to compile because many victims of salmonella illnesses do not seek medical attention. This means that the incidence figures that are collected are likely to be an expression of the laboratory and diagnostic services available in a state, or their utilization, rather than of the actual number of illnesses. The accompanying map shows the location throughout Arkansas of the cases reported during 1965. The following five

year table reveals that the number of reported cases of salmonellosis in Arkansas is steadily increasing. This increase may be due to better reporting, improvement in laboratory techniques, and for the most part due to a rise in the incidence of salmonellosis in the general population.

REPORTED ARKANSAS CASES OF SALMONELLOSIS
BY MONTH FOR FIVE YEARS

MONTH	1961	1962	1963	1964	1965
January	4	-	4	8	8
February	2	-	7	4	2
March	2	2	9	3	8
April	4	1	7	9	4
May	2	5	10	14	8
June	3	5	6	6	17
July	7	9	11	13	14
August	13	9	31	32	15
September	6	18	10	30	21
October	8	13	18	8	25
November	9	5	8	9	12
December	12	4	5	8	14
Totals	72	71	126	144	148

Public Health Officials at all levels of organization recognize their responsibilities in the study, investigation, and control of salmonellosis. It is our belief that all individuals that attend the seminar on salmonellosis will receive great benefit from the information presented on May 17, 1966.



Human Epidermal Glycogen After Inflammatory Stimuli

F. Pass et al (University of Oregon Medical School, Portland), *J Invest Derm* 45:391 (Nov) 1965

The effect of dermal inflammatory stimuli upon epidermal glycogen was studied after the intracutaneous injection of histamine, acetylcholine and bradykinin. Delayed inflammatory reactions to oidiomycin were similarly evaluated. Consistent changes occurred only after bradykinin

and oidiomycin. Glycogen accumulated only within the basal cell layer twelve hours after bradykinin injection. This disappeared by 72 hours. Glycogen accumulated within the basal and squamous layers twelve hours after oidiomycin injection. By 72 hours glycogen remained only within the higher squamous cells. Basal cell glycogen was always associated with a dermal polymorphonuclear cell infiltrate. Specific epidermal responses may be related to bradykinin and/or dermal polymorphonuclear cell infiltrate.



EDITORIAL

"Hormones" from Non-Endocrine Tumors

Alfred Kahn, Jr., M.D.

The research programs sponsored by the U. S. government agencies at Bethesda, Maryland, have resulted in a number of interesting fruitful papers. One of the most unusual was published in "Annals of Internal Medicine" Volume 61, page 733, October 1964, in the form of a clinical staff conference entitled, "Humoral Syndromes Associated with Nonendocrine Tumors." The discussion evolved around the fact that nonendocrine tumors may secrete hormone-like substances which have an effect similar to the true hormone. This is to be distinguished from tumors of true endocrine origin as adrenal tumors, pituitary tumors, etc.

W. D. Odell discussed the association of hyperthyroidism and malignancy. This association was found in association with 14 gastrointestinal tumors, 7 hematopoietic tumors, 6 pulmonary tumors, 5 prostatic tumors and 6 miscellaneous types in one series; and in another series of 8 patients, the tumor contained trophoblastic elements. Odell points out the hyperthyroidism was detected by laboratory means, not by a big goiter, etc. The mechanism probably is a thyrotrophin like action.

The relationship of hypoglycemia to non-endocrine tumor was also reviewed by Odell. The principal tumor types were of mesenchymal origin (sarcoma), then hepatic, adrenal carcinomas, and a miscellaneous group. It appears that these tumors which are all large secrete a substance different from insulin which has an insulin-like effect. When the tumor is excised the hypoglycemia disappears. Much work has been performed to better delineate the hypoglycemic action. For example, the hepatomas associated with this syn-

drome do not act on the liver and simply have them fail to release enough glucose. The tumor does not seem to use large quantities of glucose. Immuno-assays for excessive insulin in these patients have given negative results as a whole.

Waldmann reported on tumors which produce polycythemia; they are in order renal, carcinoma and benign renal tumors, then cerebellar heman-
giomata, uterine fibroma, adrenal cortical tumor or hyperplasia, ovarian tumor, hepatoma, and pheochromocytoma. There is no apparent stimulation of the platelets or white blood cell series. It is Waldmann's opinion that this is due to an erythropoetin-like substance apparently produced in the tumor. The activity disappears with excision of the tumor. Most of the studies were done on renal cysts and tumors and cerebellar heman-
tiomata. Using antibody techniques, it appears that the erythropoetin like substance in these tumors may be the same as natural erythropoetin. Some tumors produce an erythropoetic effect without producing erythropoetin as hepatomas, fibromas, adrenal tumors, etc.

Malignant tumors may produce hypercalcemia, and this is discussed by L. E. Rosenberg. He points out that although it would appear bone invasion with dissolution of bone could account for the hypercalcemia, objective proof of this position is lacking. He mentions 30 patients with hypercalcemia in which the blood calcium fell to normal after removal of the primary tumor; this group also included cases in which bone metastases seemed to be completely absent. The following sites of malignant tumors producing hyperglycemia in one series were: kidney 8, lung 8, ovary 3, uterus 2, pancreas 2, bladder 1, colon 1, vagina 1, liver 1, and liver plus prostate 1. In

these cases of hypercalcemia there is often hypophosphatemia and elevated alkaline phosphatase; this is similar to the condition in hyperparathyroidism. In light of these findings assays for parathormone-like activity were made. It appears that in some cases parathormone-like activity was found while in others changes in absorption of calcium, excretion of calcium, or some other mechanism must obtain. In summary at least in some cases, there is a humoral substance released by the cancer which elevates the blood calcium.

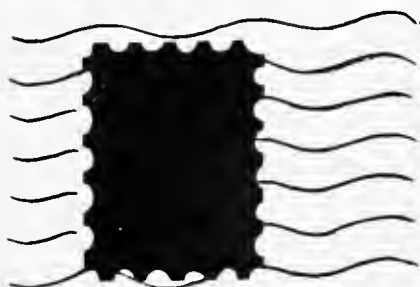
Cushing syndrome is seen in association with malignancies and this is reported by M. B. Lipsett. The following malignant tumors have been associated with Cushing syndrome, and they are listed in order of frequency: Bronchogenic carcinoma, thymic carcinoma, pancreatic carcinoma, ovarian carcinoma, thyroid carcinoma, bronchial ade-

noma, and many others of less frequent occurrence. These tumors produce an ACTH-like material and this stimulates the adrenal gland to manufacture steroids. The tumors ACTH output is autonomous and not related to need or function. These cases of Cushing's syndrome due to tumor differ from Cushing's disease in that they tend to have a faster onset, absence of classical signs and symptoms in 20% and frequently have edema and pigmentation. There are differences in the laboratory features, too. Lipsett briefly discussed inappropriate anti-diuretic hormone secretion with carcinoma of the lung, carcinoid syndrome with carcinoma of the pancreas, etc. and lastly precocious puberty with hepatoma.

This interesting conference points out that various endocrine-like abnormalities may be seen in association with non-endocrine tumors. The clinician should be aware of this.



LETTERS



TO THE EDITOR

Dec. 28, 1965

Alfred Kahn, Jr., M.D., Editor
Journal of the Arkansas Medical Society
Little Rock, Ark.

Dear Doctor Kahn:

The nephrotic syndrome remains a therapeutic dilemma. Corticosteroids are associated with numerous complications and may not halt progression to renal failure. It is apparent that newer therapeutic approaches are needed.

Some investigators suggest that immunosuppressive agents are very effective. Here at the University of Arkansas Medical Center we have devised a study of patients correlating clinical and immunologic aspects of the nephrotic syndrome with treatment regimens employing corticosteroids or azathioprine (Imuran). We are studying patients of all ages, who developed typical symp-

toms and laboratory findings of nephrosis in the preceding three months.

For such a study to be meaningful, a large number of patients should be investigated. We are hoping that physicians over the State, such as yourself would be interested in helping us by referring newly diagnosed (and preferably untreated) patients with the nephrotic syndrome. Such patients would be hospitalized in the Clinical Research Unit *at no cost* for a period of 2-4 weeks. After appropriate studies and institution of therapy, a patient would be returned to the care of his referring physician, who will receive a comprehensive report. About four months later, it is hoped that the patient could return to the Clinical Research Unit, again at no cost, for a week of evaluation. No further follow-up beyond the fourth month is anticipated.

Should you wish to refer nephrotic patients or desire more information about the project, please do not hesitate to contact either of us.

Sincerely,

Wm. J. Flanigan, M.D.
Department of Medicine
Director of Clinical Research

W. T. Kniker, M.D.
Department of Pediatrics
Pediatric Director, Clinical Research

MEDICINE IN THE



Memorial and Honor Fund of the University of Arkansas School of Medicine

The following gifts have been received by the Memorial and Honor Fund of the University of Arkansas School of Medicine:

In memory of Dr. Ellery C. Gay
Dr. C. Lewis Hyatt
Monticello, Arkansas

In memory of Dr. Joe F. Shuffield
Dr. C. Lewis Hyatt
Monticello, Arkansas

Dr. Young Succeeds Dr. Leslie

Dr. Mitchell M. Young is the Director of Bowie-Miller Counties Medical Society Tumor Clinic, St. Michael's Hospital, Texarkana, succeeding Dr. Charles L. Leslie.

Drs. Bennett and Williams Re-elected

Dr. Joe Bennett and Dr. Rhys A. Williams of Harrison have been re-elected Director and Assistant Director, respectively, for the Northwest Arkansas Tumor Clinic, Boone County Hospital, Harrison. At the completion of his first term of voluntary professional service as Tumor Clinic Director in December, Dr. Bennett received a Meritorious Service Award from the Arkansas State Cancer Commission, official agency which administers the cancer program in Arkansas. For his service as Tumor Clinic Director in previous years, Dr. Williams was the recipient of the Meritorious Service Award.

Dr. William A. Hudson, a former Tumor Clinic Director, serves as consultant for the clinic, which is staffed by members of the medical staff of Boone County Hospital without remuneration for the benefit of medically indigent cancer patients in a 12 county area. This clinic was established in 1960.

Dr. Henry Elected Director of St. Vincent Tumor Clinic

Dr. Charles R. Henry has been elected Director of St. Vincent Tumor Clinic, and Dr. James R. Walt has been re-elected Assistant Director. They head the tumor clinic staff, whose members serve on a voluntary basis without remuneration and are selected from the hospital staff.

St. Vincent Tumor Clinic, which provides services for medically indigent cancer patients, meets on Tuesday to receive gynecology cases and on Wednesday for surgery and dermatology cases. Clinic referrals are made by the patient's doctor. St. Vincent Tumor Clinic is the largest in the state with the exception of University Hospital Tumor Clinic.

Dr. Henry succeeds Dr. J. Travis Crews, who served as Director for one year. In appreciation of his distinguished voluntary professional services to the clinic and the cancer program of the state, Dr. Crews received a Meritorious Service Award from the Arkansas State Cancer Commission, official agency which administers the cancer program in Arkansas.

Hospitals Elect Staff Officers St. Joseph's Hospital, Hot Springs

Dr. W. R. Lee, Hot Springs pathologist and Deputy Garland County Coroner, has been elected chief of the medical and dental staff at St. Joseph's. Other new officers are: Dr. James H. French, vice chief of staff; Dr. J. W. Trieschmann, secretary; Dr. Jerry Hoyt, chief of medicine; Dr. Thomas Burrow, chief of surgery; Dr. Robert McCrary, chief of obstetrics and gynecology.

Ouachita Memorial Hospital, Hot Springs

Dr. Richard Springer of Hot Springs has been re-elected chief of staff at Ouachita Memorial Hospital. Dr. Stuart McConkie is vice chief of staff and Dr. John Haggard was elected secretary.

Boone County Hospital, Harrison

Dr. Van Smith of Harrison is the new chief of staff of the Boone County Hospital and Ozark Manor. Dr. William Hudson is vice president and Dr. Joe D. Bennett is secretary. Dr. Jean C. Gladden is liaison officer.

Crittenden Memorial Hospital, West Memphis

Dr. C. Herbert Taylor of West Memphis is chief of staff for 1966. Dr. Chester W. Peeples is vice chief of staff, and Dr. Keith B. Kennedy is secretary.

St. Vincent Infirmary, Little Rock

Dr. Alfred Kahn is the new chief of staff; Dr. Andrew A. Pringos, vice chief of staff; Dr. Robert W. Ross, secretary. Dr. G. Frank Stroope is chief of pediatrics; Dr. Thomas Jansen, chief of medicine; Dr. John M. Fulmer, chief of E.E.N.T.; Dr. Frank Bauer, chief of surgery; Dr. Deane D. Wallace, chief of obstetrics-gynecology; and Dr. John M. Samuel, chief of general practice.

Enrollment for Group Life Insurance Program

The Northwestern National Life Insurance Company, underwriters for the Arkansas Medical Society group life insurance program, has announced that early in 1966 subscribers to the group plan will be offered an additional \$10,000 of life insurance coverage regardless of present health. For some members who have availed themselves of all offered group life insurance, this will amount to \$30,000 of coverage.

The underwriters also announced that if a satisfactory percentage of the Society membership can be obtained, the group life insurance program will be open for enrollment again (regardless of health) for those members who have not availed themselves of any life insurance. \$10,000 of life insurance will be available to them.

New members coming into the Society will be able to purchase \$20,000 of life insurance and will be given the right to reserve the privilege of purchasing an additional \$10,000 insurance at some time in the first two years of membership in the Society.

The insurance company has reduced rates effective February 1, 1966, for all members under age fifty. Examples of these rates reductions on semi-annual premiums for \$10,000 of life insurance are:

Age 30	\$16.50	(old rate \$18.50)
Ages 30-39	\$21.50	(old rate \$23.50)
Ages 40-49	\$42.50	(old rate \$44.10)

A dividend to be credited to the August 1966 billing will further reduce premiums for the 1966 semi-annual payments.

Members interested in further information on the group life plan may contact Mr. Meyer F. Marks, Northwestern National Life Insurance Company Representative, 202 Commercial National Bank Building, Little Rock, Arkansas.

Medical School Expenditures From Funds for Regular Operations

The total dollar amount of medical school expenditures from funds for regular operations (expenditures for sponsored programs excluded) reached a new high in 1964. Expenditures for regular operations of a medical school are derived from funds that are under the control of the medical school and serve as the primary support of education and service functions of the school. The source of these funds is mainly from tuition and fees, state and city appropriations and subsidies, unrestricted gifts and grants, endowment income, transfers from general university funds, and income from the service activities of the school.

Expenditures from funds for regular operating programs have shown steady annual increases but in spite of this fact medical school deans and university administrative officers are finding it progressively more difficult to meet the increasing costs of education, service, and research activities. The marked growth in sponsored funds, devoted mainly to research and research training, has also placed an increased financial burden on the medical schools because sponsored funds (restricted gifts and grants) rarely, if ever, completely support programs for which the funds are designated. However, benefit to the regular operating programs is derived from the utilization of personnel and facilities that are supported by sponsored program expenditures.

The funds available to medical schools for the support of their regular operating programs are considered as "hard cash" income and constitute the primary source of support for growth and development.

In the five year period from 1959 to 1964 the annual level of expenditures from funds for regular operating programs has increased from \$175

million to \$286 million. In 1959, individual school expenditures ranged from \$648,000 to \$5,956,000. In 1964, school expenditures ranged from \$939,000 to \$8,811,736.

THE MONTH IN WASHINGTON

Washington, D. C.—The staff of the Senate anti-trust subcommittee has been investigating the rise in quinine prices.

The investigation resulted from receipt by members of Congress of complaints from constituents. Many of the complaints reported a sharp rise in the price of quinidine, a quinine derivative prescribed for irregular heart beats.

The Pharmaceutical Manufacturers Association attributed the price rise to a combination of decreased supplies and rising demands.

A spokesman for the association said that it had become increasingly difficult to obtain quinine's raw material, the bark of the Cinchona tree. He said that Indonesia, once the principal supplier, had virtually cut off its exports of the cinchona bark to the Western world.

Other suppliers, he said, include the Congo and some South American countries. He said these sources were seriously limited, but that the shortage was not expected to reach critical proportions.

The PMA spokesman attributed the rising demand to the appearance of new strains of malaria that are resistant to synthetic drugs developed during World War II as quinine substitutes. This has caused demands for natural quinine to rise sharply in such malaria-infested areas as Vietnam.

* * *

The Food and Drug Administration has taken the first steps in implementation of the new law designed to halt illegal traffic in depressant and stimulant drugs.

Acting FDA Commissioner Wilton B. Rankin announced proposed regulations and appointed an advisory committee of experts as authorized by the Drug Abuse Control Amendments law enacted last year.

The Advisory Committee on Abuse of Depressant and Stimulant Drugs, which held its first meeting in late December, assisted the FDA in determining the drugs covered under the new, tighter controls effective February 1, 1966. The new law specified amphetamines and barbiturates but also authorized designation of other depressant and stimulant drugs by regulatory orders of the FDA.

At its first meeting, the advisory committee considered several classes of such drugs, including certain tranquilizers, LSD-25 and other hallucinogenic agents.

The FDA regulations listed details of the records which the new law requires to be kept by every person manufacturing, compounding, processing, selling or otherwise distributing the designated drugs. The first required record is an inventory of stocks on hand of such drugs as of Feb. 1. This initial inventory must contain the identity and quantity of all the specified drugs in finished form under the control of the registrant. Records thereafter must accurately list further manufacture, receipt and disposition of the drugs.

The system of record keeping was designed to permit government agents to follow the movement of the drugs—all of which are prescription drugs—from producer to consumer.

The FDA commissioner is authorized to determine that a stimulant or depressant drug has a potential for abuse, and therefore should be covered under the law, if there is evidence of:

—Individuals taking the drug in amounts sufficient to create a hazard to their health or to the safety of other individuals or the community.

—Significant diversion of the drug from legitimate drug channels.

—Individuals taking the drug on their own initiative rather than on advice of a physician or osteopath licensed by law to administer such drugs.

Most physicians won't be affected directly by the new federal regulations which state:

"The maintaining of small supplies of these drugs for dispensing or administering in the course of professional practice in emergency or special situations will not be considered as regularly engaged in dispensing for a fee."

* * *

A panel of leading businessmen has warned of the dangers of relying too heavily on government for administration of health and retirement plans.

Such government programs should be used to help the sick, disabled and aged, the panel said, "only if voluntary and private means—truly and tested—cannot adequately meet society's needs . . . Heavy reliance on government can discourage the experimentation and innovation needed to solve our health and retirement problems. Such reliance also can narrow the freedom of choice of

people who prefer to meet their needs in their own ways."

This statement was a highlight of a 263-page report by the Task Force on Economic Growth and Opportunity, which was an independent group set up under the sponsorship of the U. S. Chamber of Commerce. The report was entitled "Poverty: The Sick, Disabled and Aged."

The report cited medicare as an example, as follows:

"In an attempt to help low income aged people obtain health care at little personal cost, medicare was attached to the tradition-bound Social Security program. As a result, medicare will help millions of Americans who are not needy by any stretch of the imagination.

"It will be financed by the Social Security payroll tax, a highly regressive tax that places heaviest burdens, in relation to income, on low income workers and on low income consumers who pay higher prices to absorb the cost of payroll taxes levied on employers."

Measles incidence in 1965 was the lowest in recent years, according to the Public Health Service's Communicable Disease Center.

Through the first 49 weeks of the year, 256,443 cases were reported, far below the average of more than 400,000 annual cases since 1960. There were 478,518 cases in the first 49 weeks of 1964.

But PHS warned that, if past experience is repeated, major epidemics can be expected in many sections of the country during the first half of 1966.

* * *

The federal government is going to spend more on health and education programs in 1966—but not as much as originally expected, principally because of the Viet Nam war.

HEW Secretary John W. Gardner says 1966 would not be a "slowdown year" in his department because of the start of new programs in elementary and secondary education, medicare, water pollution, disease control and other areas.

But, he added, a certain slackening in other programs might be useful. He declined to identify specific projects. He said, however, that they "might be done better if they are started slowly."

MINUTES

HOUSE OF DELEGATES MEETING

December 5, 1965

1:30 p.m., Forum Room, Marion Hotel

The House of Delegates of the Arkansas Medical Society was called to order in special session at 1:30 p.m. on Sunday, December 5th, 1965, in the Marion Hotel, Little Rock. Speaker Price called on past president C. R. Ellis for the invocation.

The roll of delegates was called by Mr. Schaefer. The following delegates, officers, and members seated as delegates by action of the House were present:

Delegates: ARKANSAS, R. H. Whitehead; ASHLEY, E. C. Gresham; BOONE, H. V. Kirby; BRADLEY, George F. Wynne; CHICOT, H. W. Thomas; COLUMBIA, Paul Sizemore; CRAIG-HEAD-POINSETT, John Kirkley; CRAWFORD, M. C. Edds; DESHA, J. H. Hellums; DREW, J. P. Price; FAULKNER, C. A. Archer, Jr.; FRANKLIN, David L. Gibbons; GRANT, Curtis B. Clark; HEMPSTEAD, James W. Branch; HOT SPRING, George Rosenthal; INDEPENDENCE, John Grasse; JOHNSON, Guy Shrigley; MISSISSIPPI, F. E. Utley; OUACHITA, L. E. Drewrey; PHILLIPS, L. J. Pat Bell; PULASKI, Winston Shorey, John McCollough Smith, Purcell Smith, Edgar Easley, Austin Grimes, William Fulton, James Morrison, Sam Phillips, Robert Stainton, Jerome Levy, George Mitchell; SCOTT, James A. Jenkins; SEBASTIAN, A. S. Koenig, A. C. Bradford; ST. FRANCIS, G. A. Sexton; UNION, Kenneth R. Duzan, G. W. Warren; WASHINGTON, Friedman Sisco, Morris Henry, James Mashburn; WHITE, T. A. Formby. Councilors—Eldon Fairley, Hugh Edwards, Paul Gray, Thomas E. Townsend, George Burton, John Wood, Robert McCrary, Joseph Norton, W. Payton Kolb, Ross Fowler, Stanley Applegate, C. C. Long. Officers—President C. Lewis Hyatt; President-elect L. A. Whittaker; Secretary H. Elvin Shuffield; Treasurer Ben N. Saltzman. Past President—C. R. Ellis.

Others present were: W. E. Morris, W. J. Rhinehart, J. M. Irvin, Mrs. C. A. Archer, Mr. A. M. Edwards of the AMA staff, Mr. Eugene R. Warren, Mr. Paul Harris, Mr. Schaefer and Miss Richmond. Representatives of Arkansas Blue Cross-Blue Shield in attendance were: Mr. Sam Butler,

Mr. Rick Campbell, Mr. Joe Elliott, Mr. H. T. Gardner.

Speaker Price declared a quorum present. He then called on President Hyatt for a brief explanation of the purpose of the special meeting of the House.

The chairman of the Council, Dr. H. W. Thomas, presented the following report of the activities of the Council since the last meeting of the House of Delegates:

REPORT OF THE COUNCIL

The Council met on October 31st and transacted the following business:

1. The Council was advised that the State Health Department had been appointed as the certifying agent for institutions wishing to qualify for patient care under the new Medicare law.
2. Heard and approved a resolution adopted by the American College of Pathologists stating that pathologists should separate their professional fees from hospital charges and present their own bills to all patients expected to pay for services.
3. Directed that tapes of a talk by Edward R. Annis discussing the new Medicare Law be made available to all county medical societies.
4. Directed that an AMA Reference Committee report made to the AMA House of Delegates on October 2nd be published in the December issue of the Journal of the Arkansas Medical Society.
5. Adopted a statement of policy incorporating the following principles regarding Public Law 89-97, Title 1:
 - A. Under ordinary circumstances, the individual physician, acting independently, is ethically free to select his patients;
 - (1) He may continue to give emergency treatment where needed in accordance with accepted medical ethics;
 - (2) He may participate and accept the terms of the Medicare contract;
 - (3) He may decline to render medical services to persons covered by the health-insurance-for-the-aged act;
 - (4) He may choose to treat such persons without charge;
 - (5) He may treat patients with the advance understanding that he will look to them exclusively for pay-ment and that he will or will not in any way help them in obtaining reimbursement for the cost of his services, or the cost of associated services.
 - B. A physician may either accept an assignment from the patient and collect for his services through an intermediary, or he may collect from the patient—giving him a receipted bill. The patient may then seek reimbursement from the government under the law.
 - C. It is recommended that utilization committees consist of physicians;
 - D. Recommended that the State Medical Society be its own negotiating agent and that if proper arrangements could be made with Blue Cross-Blue Shield or any other agent, it would be the disbursing agent and carry out the mechanical activities in preparing claims and providing the paper work.
 - E. Planning for the future of medicine should be an integral part of planning for the future of our State Medical Society and communications should be carried out in a manner that keeps all members advised of all activities.
 - F. All physicians are urged to support and assist AMPAC and local political action committees in their efforts to elect candidates to office who will help preserve the physicians' right to the free and independent practice of medicine.
6. The Council adopted a resolution presented by the Ouachita County Medical Society urging that regular fees for medical services rendered be paid in the forthcoming program and that the California Relative Value Scale be used as the basis for establishing a fee schedule for medical services including office calls, hospital care, surgery, house calls, and for medical care in nursing homes.
7. The Council voted to defer action on a choice for administering agent under the Medicare Program until it is learned if the Medical Society is eligible to administer the program. The Executive Vice President was directed to notify the Executive Committee as soon as a decision is made by the Department of Health, Education, and Welfare and the Exe-

cutive Committee will call a special meeting of the House of Delegates to decide the question.

8. The Council was advised by legislative counsel that the question of the constitutionality of retroactive collection of social security taxes from doctors had already been settled at the time lawyers were taken into the system.
9. The Council adopted unanimously a resolution urging George Burton to continue his service on the Council.
10. Approved a resolution to be drawn up by the radiologists similar to the resolution previously approved by the pathologists.

The Executive Committee of the Council met on November 21st and transacted the following business:

1. The Executive Committee instructed the Executive Vice President to investigate the possibility of arranging for some sort of recognition of the American Medical Association president, Dr. James Z. Appel, when he visits Little Rock January 24, 1966. Mr. Schaefer was authorized to make the necessary arrangements.
2. The Committee received a proposal from the Travelers Insurance Company that it be recommended as the intermediary for payment of medical services under Public Law 89-97.
3. The Committee received a proposal from Blue Cross-Blue Shield that the Society sanction its applying for the position of intermediary under Public Law 89-97. Those present representing Blue Cross-Blue Shield were: Dr. Guy Farris, Mr. Sam Butler, Mr. Joe Elliott, Mr. Rick Campbell, and Mr. H. T. Gardner. Mr. Butler and Mr. Campbell discussed the implementation of Part B of the Medicare Law in Arkansas as envisioned by them. They assured the Executive Committee that committees to be appointed by the Medical Society under the plan would have authority to make binding decisions in:
 - A. Supervising the gathering of information and the development of plans and procedures to be established;
 - B. (1) Determining if utilization review requirements are met under the Program;
 - (2) Assisting in the application of safe-

guards against unnecessary utilization of covered services and in the establishment of review groups outside hospitals;

- (3) Serving as a channel of communication of information relating to the program's administration;
- (4) Otherwise assisting in the administration of the medical insurance plan;
- (5) Assisting in the specific responsibility of the carrier in determining the reasonable charge for physicians' services.

Mr. Campbell and Mr. Butler assured the Executive Committee that the Committees mentioned above would be authoritative and would not simply be advisory in nature. They further stated that the uses of these committees—and the fact that their recommendations, conforming to the law and its interpretations, would be accepted and put into effect—would be mentioned explicitly by Blue Cross-Blue Shield in its proposal to the government.

4. Based on the above explanation of their program and assurances as to Medical Society committees' powers, and in view of the limited time available, the Executive Committee voted to request Blue Cross-Blue Shield to submit its proposal to the Department of Health, Education and Welfare before the December 15th deadline. Motion by Hyatt, second by Whittaker.

The Council met at 12:00 noon today and adjourned just prior to the meeting of the House. The only item on the agenda was discussion of the report of the Executive Committee action of November 21, 1965. The Council approved the report of the Executive Committee actions.

Dr. Thomas pointed out that this action of the Council did not give official Society approval to any carrier as intermediary under Part B of the Medicare Program. Upon motion of Thomas and Applegate, the House of Delegates approved and adopted the report of the Council.

Arkansas Blue Cross-Blue Shield's proposal for participation in Public Law 89-97 as intermediary for the supplementary insurance plan was presented by George Mitchell, a Medical Society representative on the Board of Trustees of the organization. Mr. Rick Campbell, a Blue Cross-Blue

in diarrhea
associated with
Gastroenteritis
Spastic bowel
Influenza-like
Infections
Antibiotic
administration



normal activity...

promptly...



In children with diarrhea prompt symptomatic control is usually urgently indicated to relieve cramping and to prevent dehydration.

Lomotil halts precipitous progress through the intestines and controls diarrhea with notable promptness, safety and effectiveness.

Experimental evidence¹ has shown that Lomotil is more efficient in this regard than morphine without the latter's manifest disadvantages. In roentgenographic study² Lomotil slowed gastrointestinal propulsion within two hours.

At the same time, by diminishing overstimulation of the intestines, Lomotil relieves the abdominal cramps and discomfort so distressing to youngsters.

Lomotil gets children off toast and tea and back to normal diets and normal activity with gratifying celerity.

with **LOMOTIL**[®] liquid/tablets

Each tablet and each 5 cc. of liquid contains:
diphenoxylate hydrochloride 2.5 mg.
(Warning: may be habit forming)
atropine sulfate 0.025 mg.

Dosage: For full therapeutic effect—Rx full therapeutic dosage. The recommended initial *daily dosages*, given in divided doses, until diarrhea is controlled, are:

Children:

- 3 to 6 months—3 mg.
(½ tsp* t.i.d.)
- 6 to 12 months—4 mg.
(½ tsp. q.i.d.)
- 1 to 2 years—5 mg.
(½ tsp. 5 times daily)
- 2 to 5 years—6 mg.
(1 tsp. t.i.d.)
- 5 to 8 years—8 mg.
(1 tsp. q.i.d.)
- 8 to 12 years—10 mg.
(1 tsp. 5 times daily)

Adults: 20 mg. (2 tsp. 5 times daily or 2 tablets 4 times daily)

*Based on 4 cc. per teaspoonful.

Maintenance dosage may be as low as one fourth the therapeutic dose.

Precautions: Lomotil, brand of diphenoxylate hydrochloride with atropine sulfate, is an exempt narcotic preparation of very low addictive potential. Recommended

dosages should not be exceeded. Lomotil should be used with caution in patients with impaired liver function and in patients taking addicting drugs or barbiturates. The subtherapeutic amount of atropine is added to discourage deliberate overdosage.

Side Effects: Side effects are relatively uncommon but among those reported are gastrointestinal irritation, sedation, dizziness, cutaneous manifestations, restlessness and insomnia.

1. Janssen, P. A. J., and Jageneau, A. H.: A New Series of Potent Analgesics: Dextro 2:2-Diphenyl-3-Methyl-4-Morpholinobutyrylpyrrolidine and Related Amides. Part 1: Chemical Structure and Pharmacological Activity, *J. Pharm. Pharmacol.* 9:381-400 (June) 1957.

2. Demeulenaere, L.: Action du R 1132 sur le transit gastro-intestinal, *Acta Gastroent. Belg.* 21:674-680 (Sept.-Oct.) 1958.

SEARLE

Research in the Service of Medicine

Shield staff member, made additional comments on administration of the program as envisioned by them.

The Society legal counsel, Mr. Eugene Warren, was called upon for an opinion as to whether or not the Society could qualify as intermediary for the supplementary insurance plan of the Law. Mr. Warren advised the House that he was of the opinion the Arkansas Medical Society could not legally qualify as intermediary for the program.

Motion was made by H. W. Thomas, second by C. C. Long, that the Society go on record as endorsing the Arkansas Blue Cross-Blue Shield as carrier for Part B of the Medicare Law, that the president or Executive Committee of the Council be authorized to appoint the twenty-one-man committee proposed by Blue Cross-Blue Shield, and that the Society not endorse the proposed survey of physicians to obtain a listing of customary fees of the individual physicians.

John Kirkley moved that Dr. Thomas' motion be amended to delete the third portion regarding the survey on fees. A voice on the amendment was inconclusive and a standing vote was called for. Delegates requested clarification of matter being voted on before taking standing vote.

H. W. Thomas, with consent of the House, then

withdrew his original motion.

L. E. Drewrey moved that the House of Delegates go on record as endorsing the Arkansas Blue Cross-Blue Shield as carrier for Part B of the Medicare Law, second by Norton. The motion carried unanimously.

T. E. Townsend pointed out that Title XIX of the Medicare Law goes into effect as soon as money is available and that it covers everything socialized medicine can cover. He expressed the opinion that such care should no longer be considered "charity" cases and that regular fees should apply. He urged members of the Society to study the provisions of Title XIX of Public Law 89-97.

A. S. Koenig moved that the Executive Committee be authorized to make the appointments to the twenty-one-man committee called for in Blue Cross-Blue Shield's proposal. Second by Ben Saltzman. Motion carried (there was one vote against the motion).

L. E. Drewrey commented that due to the lack of funds, the State would not be able to put Title XIX of Public Law 89-97 into effect, and would revert to Title XVI. He suggested that members study that portion of the law.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 85 RHYTHM: Sinus

PR: .15 sec. QRS: .10 sec. QT: ?

ABNORMAL: Very large U waves superimposed on T waves. Slight nonspecific S-T depression.

COMMENT: An interesting example of changes produces by hypokalemia.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Renal tuberculosis.

X-RAY FINDINGS: A selective film from an intravenous pyelogram shows blunting and distortion of the middle calyces of the right kidney and a large laminated and a morpous collection of calcification filling the entire upper pole of this kidney. The remainder of the kidney functions normally; the left one is normal.

Elvin Shuffield pointed out that the House had not yet settled the question on the survey regarding fees proposed by Blue Cross-Blue Shield and moved that Blue Cross-Blue Shield be permitted to survey on reasonable and customary fees to physicians over the State. Second by Stanley Applegate, motion carried.

Mr. Campbell spoke briefly requesting the full support of the Society in their proposed administration of the Medicare Law.

Upon motion of Joe Norton and Morriss Henry, the House adjourned at 3:20 p.m.

J. P. Price, Jr., M.D.

Speaker, House of Delegates



Thirteenth Annual Meeting of the Mid-Central States Orthopaedic Society

The Thirteenth Annual Meeting of the Mid-Central States Orthopaedic Society will be held May 5-7, 1966, at the Cornhusker Hotel, Lincoln, Nebraska.

16th Hahnemann Symposium

The 16th Hahnemann Symposium will be held April 27-30, 1966, at the Marriott Motor Hotel, City Line Ave. and Monument Rd., Philadelphia, Pa., 19131, by the Department of Medicine of the Hahnemann Medical College and Hospital. It will be directed by Albert N. Brest, M.D.

American College of Physicians Post Convention Tour Scheduled

The American College of Physicians invites its members to the Post Convention Tour at Bermuda's Carlton Beach Hotel April 23-30, 1966.

The American College of Physicians also invites its members to join the ACP/European Tour through Europe or Scandinavia, including Congress in Amsterdam, September 5th-29th, 1966. The purpose of this tour is to attend the Ninth Congress of International Society of Internal

Medicine in Amsterdam, September 7-10, and also to enjoy a fascinating tour of either Europe or Scandinavia.



O B I T U A R Y

Dr. James Rector (Rex) Williams

Dr. Rex Williams of Siloam Springs died December 27, 1965, at Veterans Hospital in Fayetteville at the age of 74. He was born in 1891, at Richfield, Kansas, and moved to Siloam Springs as a boy and graduated from Siloam Springs High School. He was a graduate of Kansas University School of Medicine and began his practice in Siloam Springs in 1929 and continued until he retired in 1960. He was a veteran of World War I and a member of the Methodist Church. Survivors include his widow, a son and a daughter.

Dr. Ellery Clark Gay, Sr.

Dr. Ellery Gay, aged 62, a Little Rock plastic surgeon and former director of the Crippled Children's Division of the State Welfare Department, died January 1, 1966, after a long illness. Dr. Gay was a native of Ironton, Missouri. He moved with his family to Little Rock in 1907, graduated from Little Rock High School in 1920, attended the University of Arkansas and was graduated from both the Washington University School of Dentistry and the University of Arkansas School of Medicine. He completed a residency in plastic surgery at Walter Reed Hospital at Washington in 1941, then served in the Army from 1941 to 1946. He was discharged as a lieutenant colonel after service in Africa, Italy, France and Germany. Dr. Gay had served as chief of staff of both Arkansas Baptist Hospital and Arkansas Children's Hospital and as chief of plastic surgery sections of both hospitals. He also was a member of the Board of Directors of the Arkansas Council for the Handicapped and a consultant in plastic surgery for the North Little Rock VA Hospital. He was a founding member of the Southwest Surgical Congress and a member of the Pulaski County Medical Society, Arkansas Medical Society, the

American Medical Association and the American Society of Plastic and Reconstructive Surgery. Dr. Gay had been a leader in devising new methods of treatment for burn victims. He designed burn centers for both Arkansas Children's Hospital and Arkansas Baptist Medical Center. From 1948 to 1963, he was president of Blue Cross-Blue Shield of Arkansas and was on the national Blue Cross-Blue Shield Committee. He is survived by his widow and two sons. One of his sons, Dr. Ellery C. Gay, Jr., is a physician.

Dr. Joe F. Shuffield

Dr. Joe Shuffield, 73, chairman of the State Hospital Board of Control, died December 29, 1965, of injuries received in an auto accident near Newport on December 28, 1965. Dr. Shuffield was born in 1892 and he was a graduate of Tulane University School of Medicine and he was an orthopedic surgeon. He had served as president of the Pulaski County Medical Society and the Arkansas Medical Society. He served for many years as chairman of the state society's Legislative Committee. He had been a member of the board of governors of the American College of Surgeons and chief of services and chief of staff of the Baptist Medical Center. The onetime professor of orthopedics at the University of Arkansas School of Medicine had also served as chief of staff of Arkansas Children's Hospital and member of the staff at St. Vincent's Infirmary. He had also served as a member and chairman of the State Game and Fish Commission. He was a member of Immanuel Baptist Church, Scimitar Shrine Temple and was a 32nd Degree Mason. Dr. Shuffield practiced medicine with his son, Dr. H. Elvin Shuffield. Other survivors include his widow and a daughter.

Dr. Albert Holmes Hudgins

Dr. A. H. Hudgins, aged 77, of Searcy, died at his home on January 8, 1966. He was born July 26, 1888. He was a 1914 graduate of the University of Arkansas School of Medicine and he had practiced in White County since his graduation. He was a past president of the White County Medical Society; a member of the Arkansas Medical Society and the American Medical Association. He was a member of the Baptist Church and a Mason. Survivors include his widow; two sons, Dr. W. A. Hudgins of Searcy and Dr. Paul T. Hudgins of Little Rock.

Dr. Berry Lee Moore, Sr.

Dr. Berry L. Moore, Sr., aged 63, of El Dorado, died January 4, 1966. He was a lifelong resident of Union County. He was born December 9, 1902, at Lisbon. He was a graduate of the University of Arkansas School of Medicine and he interned at Charity Hospital in New Orleans. He had practiced medicine and surgery in El Dorado since 1934, first with his father, the late Dr. J. A. Moore, and in recent years with his son, Dr. Berry L. Moore, Jr. He was a former chief of staff of Warner Brown Hospital. He was a Fellow in and life member of the American College of Surgeons, and a Fellow in Pan American College of Surgeons. He was a former president of the Union County Medical Society and of the local Lions Club. At the time of his death he was president of the Union County Medical Scholarship Foundation. He was a member of the First Baptist Church of El Dorado. Survivors include his widow, a daughter, and two sons, Dr. Moore, Jr., and Dr. John Henry Moore of New Orleans.



P E R S O N A L A N D N E W S I T E M S

Doctor Bryant Appointed

Dr. R. Frank Bryant of Pine Bluff has been appointed to the city sewer commission by the Pine Bluff City Council.

Doctor Luck Addresses Group

Dr. H. D. Luck of Arkadelphia was guest speaker at the Little Rock Optimist Club meeting in January.

Doctor Cohen Selected for Course

Dr. Louis A. Cohen, chief of psychiatry and neurology at the Veterans Administration Hospital in Little Rock, was selected as one of four physicians in the nation to participate in a 20-week postgraduate course in neurology and clinical electroencephalography at Mount Sinai Hospital in New York City beginning January 3, 1966.

Cleft Palate Conference for Arkansas

The Arkansas Children's Hospital in Little Rock has announced the existence of the State's only cleft palate conference, a group of specialists who meet eight times a year to evaluate two or three children per session for their treatment needs. Dr. William T. Dungan, medical director of the hospital, is the conference pediatrician, and Dr. Harry Hayes, Jr., serves both as conference director and plastic surgeon. Dr. Robert F. Shannon is the psychiatrist for the conference.

A.A.G.P. Members

Dr. Gene Ring of Dardanelle, Dr. James M. Robinette of Jonesboro, Dr. Robert H. White of Malvern, and Dr. Thomas A. Formby of Searcy have been elected to active membership in the American Academy of General Practice.

Dr. Hickman Ship's Doctor

Dr. Roger L. Hickman, formerly of Hickory Ridge, is now a ship's doctor for the Delta Steamship Line in South American waters.

Dr. Evans to Clinton

Dr. Gilbert Evans, formerly of Batesville, has moved to Clinton, Arkansas, for the practice of general medicine.

Nursing Home for Newport

Dr. J. D. Ashley, Dr. T. E. Williams and Dr. Roger Green, all Newport physicians, have purchased property in downtown Newport for the purpose of constructing a 50-bed private nursing home.

Doctor Hyatt Speaks

Dr. C. Lewis Hyatt, president of the Arkansas Medical Society, spoke to medical students at the University of Arkansas Medical Center in December. He discussed the new over-age 65 Medicare law.

Doctor Mock Attends Meeting

Dr. Will H. Mock, a Prairie Grove physician, attended a medical seminar in December in Fayetteville sponsored by the American Cancer Society, Arkansas Division.

Doctors Active in Boy Scouts

Dr. Joe Rushton of Magnolia has been re-elected to head the activities of over 5,000 Scouts and Scouters in South Arkansas. Dr. H. W. Thomas of Dermott was elected vice president of the Organization.

RESOLUTIONS



WHEREAS, the passing from this life of our esteemed colleague and friend, Dr. Joe F. Shuffield, has caused us all to be saddened, and

WHEREAS, Dr. Shuffield was a leader in medical affairs in Arkansas for many years serving as President of this Society and as President of the Arkansas Medical Society, and

WHEREAS, Dr. Shuffield gave generously of his time in strengthening the ideals of organized medicine for the benefit of the entire profession, and

WHEREAS, he served his native state of Arkansas as a wise and honored advisor as Chairman of the State Hospital Board of Control and as Chairman of the State Game and Fish Commission, and

WHEREAS, he earned the devotion of countless patients as he ministered tirelessly to them for more than forty years; *

BE IT THEREFORE RESOLVED:

THAT, the Members of the Pulaski County Medical Society, pause with respect to honor the memory of Dr. Shuffield, and

THAT, an expression of our heartfelt loss and sympathy be extended to Dr. Shuffield's family; and

THAT, a copy of this resolution be made a part of the permanent records of this Society, that a copy of this resolution be published in the Journal of the Arkansas Medical Society, and that a copy of this resolution be forwarded to the family of Dr. Shuffield.

By Action of the Memorials Committee
John McCollough Smith, M.D., Chairman
William L. Fulton, M.D.
T. Duel Brown, M.D.

WHEREAS, the recent death of Dr. Ellery C. Gay, a loyal member and past president of this Society has caused us to be deeply grieved; and WHEREAS, Dr. Gay served not only his profession with unselfish devotion, but his country as well, having been decorated on many occasions for outstanding service during time of war; and WHEREAS, he had an enviable record of service to his community, having served as a board member of the Chamber of Commerce, as an elder in his church, as director of the Arkansas Council for The Handicapped, and devoted his

time to countless other organizations for the betterment of mankind; and WHEREAS, Dr. Gay had gained national recognition for his contributions in the field of reconstructive surgery which brought pride to this Society;

BE IT THEREFORE RESOLVED:
THAT, in order to express our heartfelt sympathy and sense of loss, this resolution be forwarded to Dr. Gay's family, and THAT, a copy of this resolution be made a part of the permanent record of this Society, and THAT, a copy of this resolution be published in the Journal of the Arkansas Medical Society.

By Action of the Memorials Committee
John McCollough Smith, M.D., Chairman
William L. Fulton, M.D.
T. Duel Brown, M.D.



PROCEEDINGS OF SOCIETIES

Garland

Dr. Martin Eisele of Hot Springs is the new president of the Garland County Medical Society. Dr. W. R. Lee is vice president and Dr. Richard McFarland is secretary.

Boone

Dr. Joe D. Bennett of Harrison has been elected president of the Boone County Medical Society. Dr. Joe Bill Wilson is vice president and Dr. G. Allen Robinson, secretary. Dr. Henry V. Kirby was elected delegate and Dr. William Hudson was elected alternate delegate.



NEW MEMBERS

DR. JOHN EDWARD GRIFFIN is a new member of Sevier County Medical Society. A native of Woodford, Oklahoma, he received his pre-medical education from the University of Oklahoma. He received his M.D. degree from the University of Oklahoma School of Medicine in 1958 and he interned at Hillcrest Medical Center in Tulsa, Oklahoma. He practiced medicine in Tishomingo, Oklahoma, from 1960 until 1961, and he served in the U. S. Army from 1961 until 1963. Dr. Griffin is a general surgeon and his office address is Fifth and Gilson Streets in DeQueen, Arkansas.

Pulaski County Medical Society announces that DR. ROBERT COWAN POPE is a new member. He was born at Little Rock, Arkansas, and he received his preliminary education from the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1958 and he interned at Kansas City General Hospital in Kansas City, Missouri. He served in the U.S. Army from 1952 until 1954. He was in residency training in pathology at Kansas City General Hospital from 1959 until 1963. Dr. Pope's specialty is pathology and his office is at St. Vincent Infirmary in Little Rock, Arkansas.



BOOK REVIEWS

GASTROENTEROLOGY, by Henry L. Bockus, M.D., Emeritus Professor of Medicine, University of Pennsylvania Graduate School of Medicine, and Present and Former Colleagues at the University of Pennsylvania Graduate School of Medicine and School of Medicine, Volume III, Second Edition, pp. 1352, illustrated, pub-

lished by W. B. Saunders Company, Philadelphia and London, 1965.

This is the third volume of the second edition of Dr. Bockus' uniquely outstanding textbook of Gastroenterology. It is unquestionably the best reference set in the specialty of Gastroenterology. It is authentic and well written. This particular volume includes chapters on parasitosis, hepatic disease, pancreatic disease, and a miscellaneous group of conditions. This book is a very worthwhile library reference for any practicing physician. It is highly recommended to the interns and medical students as a reference book. AK

CONTROVERSY IN INTERNAL MEDICINE, edited by Franz J. Ingelfinger, M.D., Conrad Wesselhoeft Professor of Medicine, Boston University School of Medicine, Arnold S. Relman, M.D., Professor of Medicine, Boston University School of Medicine and Maxwell Finland, M.D., George Richards Minot Professor of Medicine, Harvard Medical School, pp. 679, published by W. B. Saunders Company—Philadelphia—London—1966.

This book consists of a number of articles on various disorders in which there are differences of opinion concerning the problem. The format consists of having side by side articles on the differences of opinions and then a commentary by one of the principal editors who are listed above. The book starts out with a discussion of the Boards of Internal Medicine and then goes on into a discussion of such diverse things as arteriosclerosis, anticoagulants, gastric ulcer, catheterization, anticancer drugs and so on.

The reviewer finds little to recommend this book although the various chapters are certainly written in an authoritative, interesting manner. On the other hand, why the book? Any of the information can be found elsewhere in at least as palatable form. In any event, the book is well written and accurate as to presentation. It may be of interest to internists. AK



Smoking and Prematurity

W. F. Peterson, K. N. Morese, and D. F. Kaltreider (USAF Hosp Andrews, Washington, DC) *Obstet Gynec* 26:775 (Dec) 1965

Smoking habits of 7,740 white female patients with completely uncomplicated pregnancies were studied to determine if an association existed between smoking and prematurity. Prematurity was classified by weight alone and by weight and dates. Analysis revealed an increase in the incidence of both categories of premature infants born of mothers who smoked more than 11 cigarettes daily, during pregnancy, as compared with those who smoked less than 11 cigarettes a day, and those who were non-smokers. Despite the increased incidence of prematurity, the Apgar scores were unaffected and the perinatal mortality appeared to be lower in infants born of smoking mothers.



Sponsored by Arkansas Tuberculosis Association

CHEMOPROPHYLAXIS IN CHRONIC PULMONARY EMPHYSEMA

*Daily chloramphenicol reduced significantly the incidence of *H. influenzae* in sputum of patients with chronic bronchitis and emphysema, but only slightly reduced the number of acute clinical exacerbations in a group of patients with chronic obstructive pulmonary disease.*

A study was undertaken to extend earlier observations on the bacterial flora of the sputum of patients with chronic bronchitis and emphysema, and to assess the role of *Hemophilus influenzae* in acute episodes occurring in these conditions.

Selected for the study were 40 patients from the Emphysema Section of the Bellevue Hospital Chest Clinic. All had clinical and physiologic evidence of chronic bronchial obstruction and emphysema. All but three of the patients were men and the majority were too incapacitated by breathlessness or cough to maintain a job. The three women were able to do housework only.

On the basis of sputum examinations over a period of weeks, patients were grouped according to the presence or absence of *H. influenzae* in the sputum and according to whether they had had previous prophylactic therapy.

The patients were randomly divided into two groups, 21 being placed on chloramphenicol and 19 being given a placebo. During the treatment period, from four to 14 months, all patients submitted weekly sputum specimens, were interviewed briefly, and received their weekly supply of medicine.

While being treated, the 19 patients on placebo had 41 infections and the 21 on chloramphenicol had 31.

During treatment, an immediate and persistent change in flora occurred in five patients. *H. in-*

fluenzae disappeared from the sputum of three patients in whom it had been observed intermittently before therapy, and in two patients in whom it had been present consistently before treatment. In one of these, pneumococci, which had been present sporadically the previous year, were subsequently isolated from almost every specimen during treatment with chloramphenicol, yet remained susceptible to the drug.

H. influenzae occurred significantly less frequently in the sputum of the chloramphenicol-treated patients than in the sputum of the placebo-patients. The frequency of isolation of this microorganism did not follow any seasonal pattern, but it was found more often in purulent than in nonpurulent sputum.

The incidence of pneumococci in the sputum increased in both the patients taking the placebo and in those treated with chloramphenicol. This microorganism was present throughout the year regardless of treatment and was found more frequently in purulent than in nonpurulent sputum.

Staphylococcus aureus was isolated slightly more frequently during the treatment period than in the pretreatment period. The incidence of this microorganism was higher in patients who were hospitalized at some time during the study than in those who were not hospitalized.

Gram-negative enteric rods appeared with about equal frequency in the sputum of both groups of patients during the treatment period. Beta hemolytic streptococci were isolated from about 5 per cent of the cultures from the placebo patients and from those of the chloramphenicol patients.

As for pulmonary function, although the patients receiving chloramphenicol showed slight worsening during therapy, the differences in lung volumes, maximal breathing capacity measurements, and arterial blood gases before and during treatment were not considered significant.

ANNE L. DAVIS, M.D.; EVELYN J. GROBOW, M.D.; THERESA KAMINSKI, B.A.; RALPH TOMSETT, M.D., and JOHN H. McCLEMENT, M.D. *The American Review of Respiratory Diseases*, December, 1965.

STUDIES COMPARED

The results of the daily, long-term prophylactic regimen with chloramphenicol confirm, in general, the findings of a previous trial with long-term, intermittent tetracycline therapy.

While daily administration of chloramphenicol appeared to reduce the number of infections, subjective improvement was not striking and was less frequent than in the tetracycline study.

The reduction in the incidence of *H. influenzae* in the sputum of the patients receiving chloramphenicol was slightly more striking than that obtained with the intermittent tetracycline regimen. However, with tetracycline the incidence of pneumococci was significantly lowered in contrast to the increase in pneumococcal isolations among the patients receiving chloramphenicol.

The role of *H. influenzae* in patients with chronic bronchitis and emphysema is still controversial. That it may be an etiologic factor in the acute exacerbations of these patients was suggested by the fact that, although *H. influenzae* was present in only 11 per cent of the sputum cultures from patients receiving chloramphenicol, it was present as "persistent" flora in almost 23 per cent of the infections in this group. Furthermore, in the patients treated with chloramphenicol, the incidence of *H. influenzae* in the sputum, expressed as per cent of cultures, was twice as high in the patients having exacerbations as in those who have never had acute infections during the

year. This relationship was not found in the patients receiving placebo.

Perhaps prophylactic chloramphenicol alters the sputum flora in such a way that, with acute exacerbations, *H. influenzae* is somehow allowed to assume more prominence than in patients whose flora has not been altered by a prophylactic antimicrobial, or perhaps the failure to eliminate *H. influenzae* with chloramphenicol identifies a group of patients who are at greater risk of recurrent infection.

That pneumococcus may be of importance in the exacerbations of chronic bronchitis and emphysema is suggested by the fact that, in the patients treated with the placebo, the infection rate in those who had pneumococci at some time was considerably higher than in those who had never had this microorganism isolated from their sputum. Furthermore, most of the patients who had acute infections had pneumococci at some time during the study, whereas only a third of the patients who had never had infections had the microorganism.

In the majority of patients, long-term chemoprophylaxis is probably not justified. If it is continued indefinitely, it is expensive. It has been found, too, that if it is discontinued after six months, approximately 50 per cent of the patients revert to their pretreatment state. Furthermore, evidence is accumulating to suggest a non-bacterial etiology of most acute exacerbations.



Castration in the Treatment of Advanced Breast Cancer

E. F. Lewison (Johns Hopkins Hosp, Baltimore)
Cancer 18:1558 (Dec) 1965

Ovarian hormones have a profound effect upon the natural history of some hormone-sensitive breast cancers. In premenopausal patients with advanced, recurrent or metastatic breast cancer the response to therapeutic castration is between 25% to 35%. Prophylactic castration may length-

en the free-interval but not the total survival time or survival rate. Thus, in this dilemma of therapeutic versus prophylactic castration the decision is difficult and the data doubtful. Prophylactic castration is recommended in premenopausal patients having an advanced stage II cancer at the time of mastectomy. For all other patients castration is reserved for therapeutic purposes. All premenopausal patients with breast cancer are urged to avoid pregnancy and oral contraceptives containing estrogens.

What is the single most important contribution to drug research?

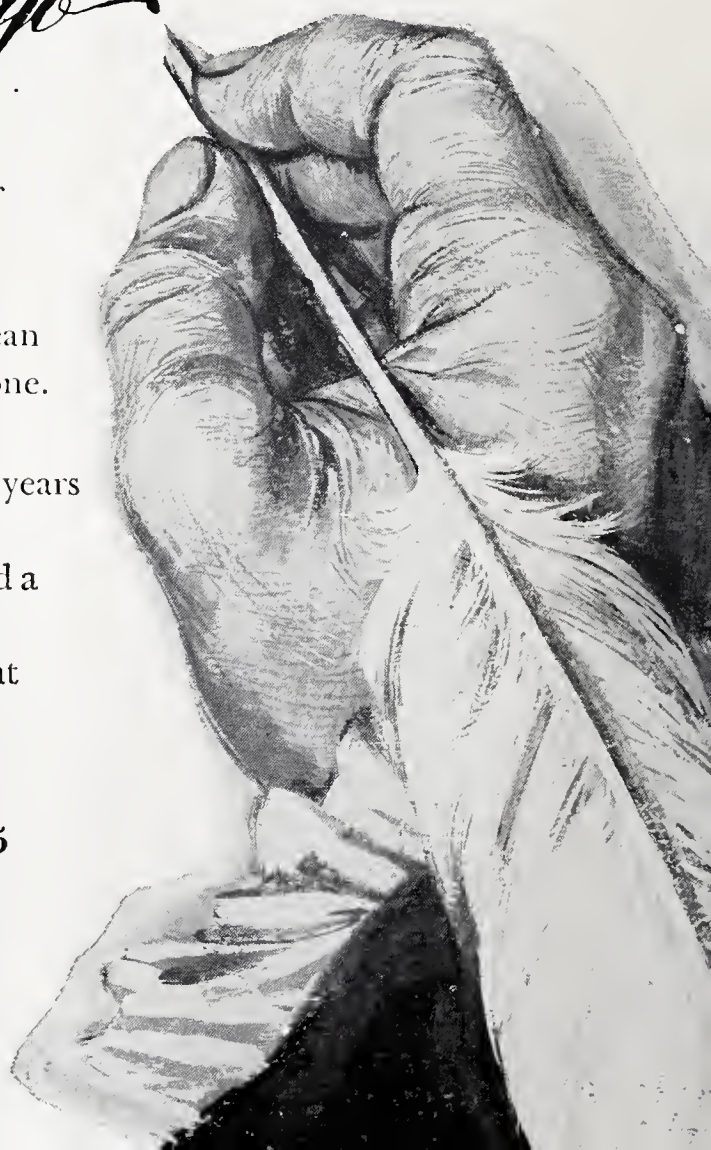
It was made 175 years ago

when President Washington signed the first U.S. patent law. For patents mean drug progress. For example, of the 604 important drugs introduced worldwide since 1941, the majority originated in the U.S. drug industry. By contrast, a major west European nation, which has no patent protection, contributed one.

How great is the contribution of drug patents?

The answer is told in life itself: our children live 10 years longer than we, and need not suffer polio, measles, diphtheria, tuberculosis, rheumatic heart disease, and a dozen other illnesses we grew up fearing. We can expect these benefits to multiply—as long as our patent system remains strong.

**Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W. Washington, D.C. 20005**



ANNUAL MEETING PROGRAM

May 1 — 4, 1966

Hot Springs



CONVENTION OFFICIALS

GENERAL CHAIRMAN: John V. Busby, M.D., Little Rock

PROGRAM COMMITTEE:

Thomas E. Burrow, M.D., Hot Springs

Guy R. Farris, M.D., Little Rock

C. Randolph Ellis, M.D., Malvern

Thomas E. Townsend, M.D., Pine Bluff

Hal R. Black, Jr., M.D., Little Rock

Amail Chudy, M.D., North Little Rock

Art B. Martin, M.D., Fort Smith

Joseph S. Robinette, M.D., Pine Bluff

Betty Anne Lowe, M.D., Texarkana

SCIENTIFIC EXHIBITS CHAIRMAN: J. Harry Hayes, Jr.,
M.D., Little Rock

GOLF TOURNAMENT CHAIRMAN: Thomas E. Burrow,
M.D., Hot Springs

MEMORIAL SERVICE CHAIRMAN: John H. Miller, M.D.,
Camden

PRESS LIAISON: C. Randolph Ellis, M.D., Malvern

Digest of Events

REGISTRATION

The registration desk will be located on the Mezzanine of the Arlington Hotel and will be open as follows:

Sunday, May 1	8 a.m. to 5:00 p.m.
Monday, May 2	8 a.m. to 5:00 p.m.
Tuesday, May 3	8 a.m. to 5:00 p.m.
Wednesday, May 4	8 a.m. to Noon

Registration cards and badges will be prepared in advance for the officers of the Arkansas Medical Society and for the county society delegates. Delegates are requested to present credentials in proper form when registering.

All members and visitors are required to register, as admission to all sessions will be by badge only. Bring your 1966 membership card to facilitate registration. Members of the American Medical Association from other states may register as guests.

There will be no registration fee. Purchase of luncheon and banquet tickets will be optional.

TELEPHONE SERVICE

A special convention telephone will be installed at the Society's registration desk. The telephone number will be NA 4-5277. Give this number to your office personnel so that they may contact you in case of an emergency.

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society will meet as follows:

Sunday, May 1	10:00 a.m., Montagu Room, Arlington Hotel
Monday, May 2	7:30 a.m., Montagu Room, Arlington Hotel
Tuesday, May 3	7:30 a.m., Montagu Room, Arlington Hotel
Wednesday, May 4	9:00 a.m., Montagu Room, Arlington Hotel
Wednesday, May 4	Immediately following the adjournment of the House of Delegates in the Fountain Room, brief reorganizational meeting.

The voting members of the Council are: The Councilors, the president, the first vice president, president-elect, secretary and treasurer. The speaker, vice speaker, and past presidents are members ex-officio without vote.

HOUSE OF DELEGATES

The opening session of the House of Delegates of the Arkansas Medical Society will be called to order at 1:00 p.m. on Sunday, May 1st, in the Fountain Room of the Arlington Hotel.

The closing session and election of officers will begin at 10:00 a.m. on Wednesday, May 4, in the Fountain Room of the Arlington.

All items of business will be referred by the Speaker of the House of Delegates to the three reference committees. Open hearings on all resolutions and reports will begin at 3:30 p.m. on Sunday, May 1st. (See separate schedule for meeting places.) Any member of the Arkansas Medical Society is welcome to attend the meetings of the reference committees and to express his views on the various reports, resolutions, etc. After the open hearings the reference committees will go into executive session for the purpose of preparing reports and recommendations to the House of Delegates.

SCIENTIFIC SESSIONS

The scientific program of the annual meeting will be held all day Monday and until noon on Tuesday. There will be two simultaneous programs of scientific lectures presented by guest speakers from the University of Michigan Medical Center in Ann Arbor. The lectures will be presented in the Ball Room and Banquet Room on the mezzanine floor of the hotel. All convention visitors enter through the exhibit area.

The complete program for the annual meeting begins on page 458.

ROUNDTABLE LUNCHEONS

Visiting guest speakers will lead informal discussion sessions at roundtable luncheons beginning at 12:15 p.m. on Monday and 12:30 p.m. on Tuesday in the Main Dining Room of the Arlington Hotel. Members may choose from six large tables; two of the guest speakers will be seated at each table. Opportunities for the exchange of scientific comment and opinion will be afforded throughout luncheons.

TECHNICAL AND SCIENTIFIC EXHIBITS

Thirty-two displays by firms whose products and services are of interest to Arkansas physicians will be housed in the Exhibit Area of the Ballroom on the Mezzanine floor of the Arlington Hotel.

In addition, there will be twelve scientific and institutional exhibits in the mezzanine lobby area. A complete list of the scientific and technical exhibitors appears on pages 463, 464 and 465. Exhibit hours are from 8:00 a.m. to 5:00 p.m. on Monday and Tuesday.

PRESIDENT'S INAUGURAL DINNER

The social highlight of the 1966 Annual Meeting will be the President's Inaugural Dinner on Tuesday evening, May 3rd, in the Main Dining Room of the Arlington Hotel. A delicious buffet dinner will be served, beginning at 7:00 p.m.

Following dinner Dr. L. A. Whittaker, Jr., of Fort Smith, will be inaugurated as president of the Society.

Tickets for the dinner will be \$5.00 per person and will be available at the registration desk.

PAST PRESIDENT'S BREAKFAST

The traditional breakfast for former presidents of the Arkansas Medical Society will be held at 7:30 a.m. on Wednesday, May 4, in Cafe 2 of the Arlington Hotel.

FIFTY YEAR CLUB BREAKFAST

The Society will host a breakfast for members of the Fifty Year Club at 7:30 a.m. on Tuesday, May 3rd, in the Fountain Room of the Arlington Hotel. Members of the Fifty Year Club may make a reservation for the breakfast at the Society's convention registration desk.

AUXILIARY MEETING

The Woman's Auxiliary to the Arkansas Medical Society will hold its annual meeting May 1-3 in the Arlington Hotel. See page 462 for program.

FREE COFFEE BAR

The Arkansas State Medical Assistants Society will have a free "coffee bar" in the Mezzanine lobby area of the Arlington Hotel. Doughnuts will be served from 8:00 to 10:00 a.m. on Monday and Tuesday. Members are urged to visit the medical assistants for a cup of coffee and discussion of their organization.

MEMORIAL SERVICE

A joint Society-Auxiliary Memorial Service will be held Tuesday morning, May 3rd, in the Fountain Room of the Arlington Hotel. See page 461 for program.

Related Meetings

ARKANSAS DERMATOLOGIC SOCIETY

The Arkansas Dermatologic Society will meet on Saturday, April 30th, at the Country Club of Little Rock for cocktails and a dinner beginning at 7:00 p.m.

On Sunday, May 1, the Society will have its annual clinical meeting at the outpatient building of the University of Arkansas Medical Center. The presentation of clinical cases will begin at 9:00 a.m., followed by a discussion of the cases at 10:30 a.m. in the Student Union Building. This will be followed by a luncheon at 12:45 p.m. at the Sam Peck Hotel. Dr. Arthur C. Curtis, professor and chairman for the Department of Dermatology at the University of Michigan Medical Center, will be guest participant.

ARKANSAS CANCER SOCIETY

The Arkansas Cancer Society will hold a scientific session at 3:15 p.m. on Sunday, May 1, in the Arlington Hotel. Dr. Lester Martin, pediatric surgeon at the Cincinnati Children's Hospital, University of Cincinnati, will speak on "Cancer in Children".

ARKANSAS RADIOLOGICAL SOCIETY

The Arkansas Radiological Society will hold a scientific and business meeting beginning at 2:00 p.m. in the Montagu Room of the Arlington Hotel on Tuesday, May 3.

ARKANSAS DISTRICT BRANCH, AMERICAN PSYCHIATRIC ASSOCIATION

Arkansas District Branch, American Psychiatric Association, will hold a scientific and business meeting on Tuesday afternoon, May 3rd, in the Arlington Hotel.

ARKANSAS SOCIETY OF INTERNAL MEDICINE

The Arkansas Society of Internal Medicine will hold a business meeting in the Arlington Hotel on Tuesday afternoon, May 3.

EYE, EAR, NOSE AND THROAT SECTION

The EENT Section will hold an all-day meeting on Tuesday, May 3rd, in Cafe 2 of the Arlington Hotel. Dr. Harold Beasley of Fort Worth, Texas, will speak on "Visual Fields in Aphakia and Late Vitreous Complications Following Cataract Surgery". Dr. Daniel Baker of New York City will talk on "Trauma to the Larynx".

JOINT SCIENTIFIC SESSION OF UROLOGISTS, RADIOLOGISTS, AND PEDIATRICIANS

The urologists, radiologists, and pediatricians will meet for a joint scientific session at 3:00 p.m. on Monday, May 2nd, in the Velda Rose Hotel.

CLASS OF 1951

The 1951 graduating class of the University of Arkansas School of Medicine will hold a reunion on Monday evening, May 2, 1966, beginning at 7:30 p.m. There will be a dinner and entertainment. The meeting place is to be announced. Dr. A. R. Hammon of Harrison is in charge of arrangements.

CONSULTANTS TO CRIPPLED CHILDREN'S DIVISION

Dr. William B. Stanton, Medical Director of the Crippled Children's Division, Arkansas State Department of Public Welfare, has announced that all physician consultants for the program will meet for lunch at 12:30 p.m. on Tuesday, May 3rd, 1966, in the Arlington Hotel, Hot Springs.

ARKANSAS ACADEMY OF GENERAL PRACTICE

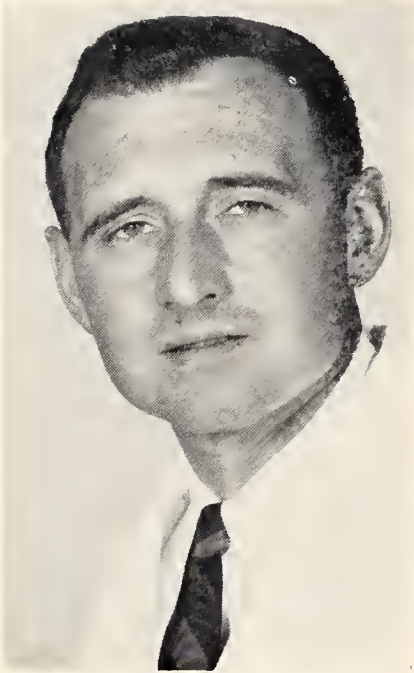
The Arkansas Academy of General Practice tentatively plans to hold a two-hour scientific session on Tuesday afternoon, May 3, 1966, beginning at 2:00 p.m. in the Arlington Hotel. The program has not yet been announced.

ARKANSAS ORTHOPEDIC SOCIETY

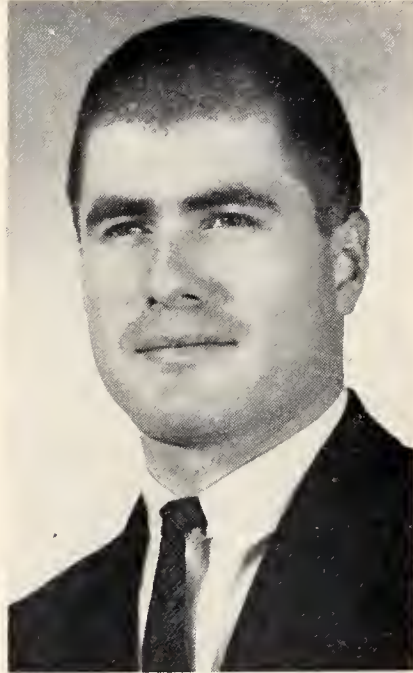
The Arkansas Orthopedic Society will hold a business meeting at 2:00 p.m. on Tuesday, May 3, at the Velda Rose Towers. The business meeting will be followed by cocktails for Orthopedic Society members and their wives.

Distinguished Guest Speakers

from the
University of Michigan Medical Center, Ann Arbor, Michigan



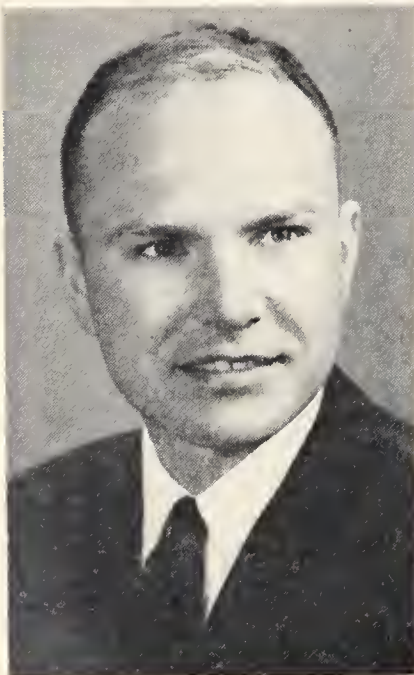
JOSEPH C. CERNY, M.D.
Assistant Professor of Surgery
(Urology)
Department of Surgery,
Urological Section



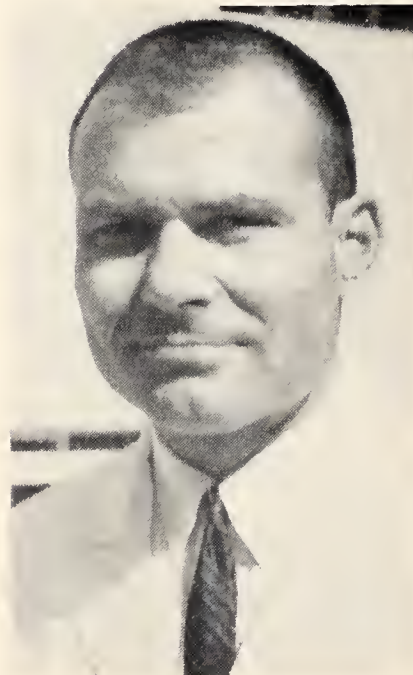
A. WILLIAM KIEGER, M.D.
Instructor in Surgery
Section of
Orthopaedic Surgery



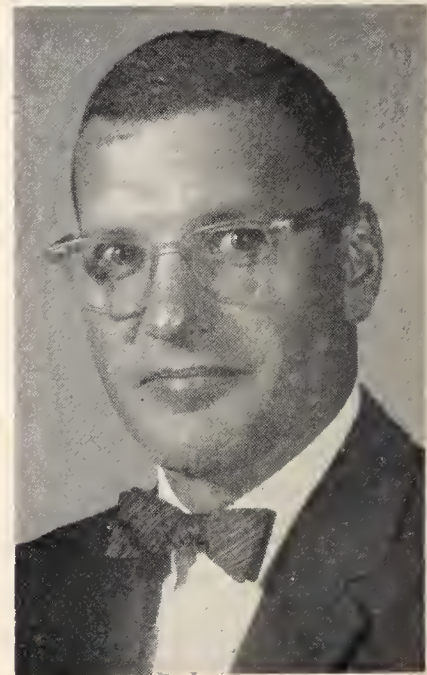
NEAL A. VANSELOW, M.D.
Assistant Professor of
Internal Medicine
(Allergy)



JEREMIAH G. TURCOTTE, M.D.
Assistant Professor of Surgery
Department of Surgery



ROGER BOLES, M.D.
Instructor in Otorhinolaryngology
Otorhinolaryngology Department



GEORGE H. LOWREY, M.D.
Professor of Pediatrics and
Communicable Diseases

Distinguished Guest Speakers

from the
University of Michigan Medical Center, Ann Arbor, Michigan



WALTER M. WHITEHOUSE, M.D.
Professor and Chairman
Department of Radiology



JOHN R. G. GOSLING, M.D.
Associate Professor of
Obstetrics and Gynecology
and
Assistant Dean of the
Medical School



ROBERT B. SWEET, M.D.
Professor of Anesthesiology
and
Chairman of Department of
Anesthesiology



ARTHUR C. CURTIS, M.D.
Professor of Dermatology
and
Chairman of Department of
Dermatology



MURRAY R. ABELL, M.D.
Professor of Pathology
Pathology Department



RAYMOND W. WAGGONER, M.D.
Professor of Psychiatry
Chairman of Department
of Psychiatry
Director of Neuropsychiatric
Institute

Monday Morning, May 2, 1966

(Members have a choice of two programs of scientific lectures being presented simultaneously)

SCHEDULE "A"

Ballroom, Arlington Hotel

ROBERT F. MCCRARY, M.D., Councilor, Presiding

- 9:00 a.m. "Present Status of Obstetric Radiology"—Walter M. Whitehouse, M.D. Professor and Chairman, Department of Radiology, University of Michigan Medical Center, Ann Arbor
- 9:30 a.m. "Acne Vulgaris"—Arthur C. Curtis, M.D., Professor and Chairman, Department of Dermatology, University of Michigan Medical Center, Ann Arbor
- 10:00 a.m. "Physiological Complaints in Depression"—Raymond W. Waggoner, M.D., Sc.D., Professor of Psychiatry, Chairman of Department of Psychiatry, and Director of Neuropsychiatric Institute, University of Michigan Medical Center, Ann Arbor

VISIT EXHIBITS

- 10:30 a.m. "Obesity in Childhood"—George H. Lowrey, M.D., Professor of Pediatrics and Communicable Diseases, University of Michigan Medical Center, Ann Arbor
- 11:00 a.m. "Treatment of Status Asthmaticus"—Neal A. Vanselow, Assistant Professor of Internal Medicine (Allergy), University of Michigan Medical Center, Ann Arbor
- 11:30 a.m. "Surgical Treatment of Hypertension: Part I, Renovascular Hypertension"—Joseph C. Cerny, M.D. Assistant Professor of Surgery (Urology), Department of Surgery, Urological Section, University of Michigan Medical Center, Ann Arbor

SCHEDULE "B"

Banquet Room, Arlington Hotel

JOE B. WHARTON, JR., M.D.,

SECOND VICE PRESIDENT, presiding

- "Recent Advances in the Treatment of Shock"—Jeremiah G. Turcotte, M.D., Assistant Professor of Surgery, Department of Surgery, University of Michigan Medical Center, Ann Arbor
- "Intravenous Regional Anesthesia"—Robert B. Sweet, M.D., Professor of Anesthesiology and Chairman of Department of Anesthesiology, University of Michigan Medical Center, Ann Arbor
- "Clinical Diagnosis of Ovarian Enlargements in Childhood and Adolescence"—John R. G. Gosling, M.D., Associate Professor of Obstetrics and Gynecology and Assistant Dean of the Medical School, University of Michigan Medical Center, Ann Arbor
- "Pathology of Ovarian Neoplasm in Childhood and Adolescence"—Murray R. Abell, M.D., Ph.D., Professor of Pathology, Pathology Department, University of Michigan Medical Center, Ann Arbor
- "Parotid Tumors"—Roger Boles, M.D., Instructor in Otorhinolaryngology, Otorhinolaryngology Department, University of Michigan Medical Center, Ann Arbor
- "Diagnostic Problems in Trauma of the Extremities"—A. William Kieger, M.D., Instructor in Surgery (Section of Orthopaedic Surgery), University of Michigan Medical Center, Ann Arbor

IMMEDIATELY FOLLOWING:

ADDRESS OF THE PRESIDENT—C. Lewis Hyatt, M.D., Monticello, President of the Arkansas Medical Society, Ballroom.

12:15 p.m. ROUNDTABLE LUNCHEON—Main Dining Room, Arlington Hotel—Informal Discussion with guest speakers.

Monday Afternoon, May 2, 1966

(Members have a choice of two programs of scientific lectures being presented simultaneously)
(Also see separate program for joint specialty section program at 3:00 p.m.)

SCHEDULE "A"

Ballroom, Arlington Hotel

JOE B. WHARTON, JR., M.D.,

Second Vice President, presiding

2:00 p.m. "Further Experiences with Isotope Radiology" — Walter M. Whitehouse, M.D., Professor and Chairman Department of Radiology, University of Michigan Medical Center, Ann Arbor

2:30 p.m. "Surgical Treatment of Hypertension: Part II, Aldosteronism" — Joseph C. Cerny, M.D., Assistant Professor of Surgery (Urology), Department of Surgery, Urological Section, University of Michigan Medical Center, Ann Arbor

VISIT EXHIBITS

3:00 p.m. "Hypersensitivity to Stinging Insects" — Neal A. Vanselow, M.D., Assistant Professor of Internal Medicine (Allergy), University of Michigan Medical Center, Ann Arbor

3:30 p.m. "What Can One Do About Warts?" — Arthur C. Curtis, M.D., Professor of Dermatology and Chairman of Department of Dermatology, University of Michigan Medical Center, Ann Arbor

4:00 p.m. "The Use of Psychotropic Drugs in General Practice" — Raymond W. Waggoner, M.D., Sc.D., Professor of Psychiatry, Chairman of Department of Psychiatry and Director of Neuropsychiatric Institute, University of Michigan Medical Center, Ann Arbor

4:30 p.m. "Effect of Anti-Hypertensive Drugs on Anesthesia" — Robert B. Sweet, M.D., Professor of Anesthesiology and Chairman of Department of Anesthesiology, University of Michigan Medical Center, Ann Arbor

3:00 p.m. JOINT SESSION OF THE UROLOGISTS, RADIOLOGISTS, AND PEDIATRICIANS. Velda Rose Hotel. Dr. Robert I. Garrett, Professor of Urology at Indiana University, will speak on Cineurography. Dr. George H. Lowrey of the University of Michigan Medical Center will speak on some aspect of pediatrics. Dr. Garrett, Dr. Lowrey, Dr. Joseph C. Cerny of the University of Michigan Medical Center and Dr. Theodore C. Panos of the University of Arkansas Medical Center will participate in a panel discussion on pyelonephritis.

SCHEDULE "B"

Banquet Room, Arlington Hotel

J. WARREN MURRY, M.D.,

Third Vice President, presiding

"Common Problems in the Diabetic Child" — George H. Lowrey, M.D., Professor of Pediatrics and Communicable Diseases, University of Michigan Medical Center, Ann Arbor

"Surgical Management of Bell's Palsy" — Roger Boles, M.D., Instructor in Otorhinolaryngology, Otorhinolaryngology Department, University of Michigan Medical Center, Ann Arbor

"Cerebral Palsy in Office Practice" — A. William Kieger, M.D., Instructor in Surgery (Section of Orthopaedic Surgery), University of Michigan Medical Center, Ann Arbor

"Pathogenesis and Treatment of Portal Hypertension" — Jeremiah G. Turcotte, M.D., Assistant Professor of Surgery, Department of Surgery, University of Michigan Medical Center, Ann Arbor

"Chronic Lesions of Vulva" — John R. G. Gosling, M.D., Associate Professor of Obstetrics and Gynecology and Assistant Dean of the Medical School, University of Michigan Medical Center, Ann Arbor

"Leukoplakia, Dysplasia and Carcinoma in Situ of Vulva" — Murray R. Abell, M.D., Ph.D., Professor of Pathology, Pathology Department, University of Michigan Medical Center, Ann Arbor

Tuesday Morning, May 3, 1966

(Members have a choice of two programs of scientific lectures being presented simultaneously)
(Also see separate program for EENT Section meeting)

SCHEDULE "A"

Ballroom, Arlington Hotel

J. WARREN MURRY, M.D.,
Third Vice President, presiding

9:00 a.m. "Endometrial Biopsy — Clinical Aspects" — John R. G. Gosling, M.D., Associate Professor of Obstetrics and Gynecology, and Assistant Dean of the Medical School, University of Michigan Medical Center, Ann Arbor

9:30 a.m. "Endometrial Biopsy — Pathological Interpretation" — Murray R. Abell, M.D., Ph.D., Professor of Pathology, Pathology Department, University of Michigan Medical Center, Ann Arbor

10:00 a.m. "The Mass in the Neck" — Roger Boles, M.D., Instructor in Otorhinolaryngology, Otorhinolaryngology Department, University of Michigan Medical Center, Ann Arbor

VISIT EXHIBITS

10:30 a.m. "Management of Acute Hematogenous Osteomyelitis" — A. William Kieger, M.D., Instructor in Surgery (Section of Orthopaedic Surgery), University of Michigan Medical Center, Ann Arbor

11:00 a.m. "A Rational Approach to Fluid and Electrolyte Therapy" — Jeremiah G. Turcotte, M.D., Assistant Professor of Surgery, Department of Surgery, University of Michigan Medical Center, Ann Arbor

11:30 a.m. "Effect of MAO Inhibitors on Anesthesia" — Robert B. Sweet, M.D., Professor of Anesthesiology and Chairman of Department of Anesthesiology, University of Michigan Medical Center, Ann Arbor

SCHEDULE "B"

Banquet Room, Arlington Hotel

ROBERT F. MCCRARY, Councilor, presiding

"Accidental Poisoning" — George H. Lowrey, M.D., Professor of Pediatrics and Communicable Diseases, University of Michigan Medical Center, Ann Arbor

"Marriage Counseling as a Responsibility of the Physician" — Raymond W. Waggoner, M.D., Sc.D., Professor of Psychiatry, Chairman of Department of Psychiatry and Director of Neuropsychiatric Institute, University of Michigan Medical Center, Ann Arbor

"The Failing Kidney: Diagnosis and Treatment" — Joseph C. Cerny, M.D., Assistant Professor of Surgery (Urology) Department of Surgery, Urological Section, University of Michigan Medical Center, Ann Arbor

"Immediate Drug Reactions: Prevention and Treatment" — Neal A. Vanselow, M.D., Assistant Professor of Internal Medicine (Allergy), University of Michigan Medical Center, Ann Arbor

"Benign and Malignant Lesions of the Skin" — Arthur C. Curtis, M.D., Professor of Dermatology and Chairman of Department of Dermatology, University of Michigan Medical Center, Ann Arbor

"Unusual Manifestation of Bronchial Carcinoma" — Walter M. Whitehouse, M.D., Professor and Chairman, Department of Radiology, University of Michigan Medical Center, Ann Arbor

IMMEDIATELY FOLLOWING:

Memorial Service (Arkansas Medical Society and Woman's Auxiliary to the Arkansas Medical Society)

Fountain Room, Arlington Hotel

(See program below)

9:00 a.m. EENT Section Program

Cafe 2, Arlington Hotel

Speakers include Dr. Harold Beasley, Fort Worth "Visual Fields in Aphakia and Late Vitreous Complications Following Cataract Surgery"

Dr. Daniel Baker, New York City, "Trauma to the Larynx"

12:30 p.m. ROUNDTABLE LUNCHEON —
Main Dining Room, Arlington Hotel

Arkansas Radiological Society—Arlington Hotel

12:30 p.m. Luncheon meeting, consultants to
Crippled Children's Division, Welfare Department, Arlington Hotel

Arkansas Society of Internal Medicine, Arlington Hotel, Panel — "The Internists and the Third Party—Medicare, Insurance, etc."

Arkansas District Branch, American Psychiatric Association—Arlington Hotel

Tuesday Afternoon, May 3, 1966

2:00 p.m. EENT Section meeting — Arlington Hotel

Arkansas Academy of General Practice—Arlington Hotel

Memorial Service

Arkansas Medical Society—Woman's Auxiliary to the Arkansas Medical Society

Fountain Room, Arlington Hotel

A joint Memorial Service of the Arkansas Medical Society and the Woman's Auxiliary will be held in the Fountain Room of the Arlington Hotel, beginning at 11:50 a.m. on Tuesday, May 3rd. Dr. C. Lewis Hyatt, President of the Society, will preside.

Dr. John H. Miller of Camden will give the Memorial address; Dr. Fred O. Henker of Little Rock will give the invocation and benediction; Mrs. Ronald Bracken of Hot Springs will sing.

The following is a listing of Auxiliary members who have passed away since the 1965 convention:

Mrs. T. J. Raney, Little Rock

Mrs. W. F. Smith, Little Rock

Mrs. George L. Hardgrave, Clarksville

Mrs. Perry Dalton, Camden

Mrs. J. S. Jenkins, Pine Bluff

The following is a listing of Society members who have passed away since the 1965 convention:

Dr. Byron Z. Binns, Eudora

Dr. Matthew M. Blakely, Benton

Dr. T. E. Buffington, Benton

Dr. John Nye Compton, Little Rock

Dr. N. B. Ellis, Wilson

Dr. James R. Fall, West Memphis

Dr. Ellery C. Gay, Sr., Little Rock

Dr. Joseph G. Gladden, Harrison

Dr. Clarence L. Glenn, Fort Smith

Dr. Harlan H. Hill, Little Rock

Dr. A. H. Hudgins, Searcy

Dr. G. L. Kimball, Daisy

Dr. O. J. Kirksey, Mulberry

Dr. B. D. Luck, Pine Bluff

Dr. W. M. McRae, Little Rock

Dr. L. C. McVay, Marion

Dr. Frank C. Maguire, Sr., Augusta

Dr. J. J. Monfort, Batesville

Dr. Berry L. Moore, Sr., El Dorado

Dr. Henry A. Murphy, El Dorado

Dr. William L. Newton, Smackover

Dr. Norf G. Partee, Camden

Dr. T. J. Raney, Jr., Little Rock

Dr. Joseph F. Shuffield, Little Rock

Dr. Henry T. Smith, McGehee

Dr. James R. (Rex) Williams, Siloam Springs

Tentative Program

ANNUAL SESSION

of the

WOMAN'S AUXILIARY to the ARKANSAS MEDICAL SOCIETY

Arlington Hotel, Hot Springs

May 1-3, 1966

Sunday—May 1—4:00 p.m. to 5:00 p.m.—Mrs. Charles F. Wilkins, President, and Mrs. John M. Smith, president-elect, will entertain members of their respective boards at a tea.

Monday—May 2—

8:00 a.m. Pre-convention Board Meeting and Breakfast

9:30 a.m. Opening General Session

Introduction of Honor Guests

Roll call and seating of delegates

Election of nominating committee

Reports of Officers and Committee chairmen

Address by Mrs. John Chenault, Director, Woman's Auxiliary to the American Medical Association

12:30 p.m. Luncheon honoring Mrs. John Chenault, Director of Woman's Auxiliary to the American Medical Association

2:30 p.m. School of instruction for all members, but especially for all county presidents and committee chairmen. Mrs. John Smith, president-elect, presiding.

Tuesday—May 3—

8:00 a.m. Past-president's breakfast

9:30 a.m. Second general session

Report of Nominating Committee

Election of Officers

Reports of County Presidents

Address by representative of Woman's Auxiliary to the Southern Medical Association

11:30 a.m. Memorial Service with the Arkansas Medical Society

12:30 p.m. Luncheon—Installation of officers

2:30 p.m. Post-Convention Board Meeting

7:00 p.m. Banquet and dance with the Arkansas Medical Society.

Technical Exhibits

The business firms who purchase exhibit space at our Annual Session contribute a great deal to the financing, as well as to the educational aspects, of the meeting. The number of visits to the technical exhibits is the only criteria by which these companies can judge the value they receive from the investment in booth rental, displays, and employees' time. You will be rewarded for the time you spend visiting the exhibits. Following are descriptions of displays to be featured.

ABBOTT LABORATORIES

Abbott Laboratories invites you to visit our exhibit. Our representatives will be happy to answer any questions you may have concerning our leading products and new developments.

A. H. ROBINS COMPANY, INC.

You are cordially invited to visit the Robins display and meet our representatives who will be happy for the opportunity to discuss products of interest to you.

AMERICANA CORPORATION

ARKANSAS BLUE CROSS-BLUE SHIELD

Our booth is for your convenience and we welcome your visit. Blue Cross-Blue Shield representatives are always ready to help solve any case problem or answer your questions. Our association with the medical profession has been largely responsible for our growth in membership which now totals over 300,000—an achievement of which we should all be proud.

BRISTOL LABORATORIES

Exhibit features TEGOPEN (Sodium Cloxacillin Monohydrate). Unlike Penicillin V or G, TEGOPEN eradicates streptococci, pneumococci, staphylococci, and resistant staphylococci, and it is priced comparable to quality brands of Penicillin V and G. TEGOPEN is available in three dosage forms: 250 mg. capsules, oral solution, and 125 mg. pediatric capsules.

C. DeWITT LUKENS COMPANY

A complete line of surgical sutures will be displayed, featuring particularly our I-O Gut, with its unique quality of preventing the transmission of cancer cells along the suture trace. New ophthalmic sutures and texturized (Lu-Tex®) dacron sutures will also be shown. Reference will be made to our Twin-Tube Pack and our original method of COLD Sterilization.

CIBA PHARMACEUTICALS

THE COCA-COLA COMPANY

Ice cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Company of Hot Springs, Inc., and The Coca-Cola Company.

DABBS SULLIVAN COMPANY

Mr. Melvin Spear, Account Executive with Dabbs Sullivan Company, Inc., will exhibit pamphlets and brochures regarding investment securities. Included in this exhibit are Mutual Fund prospectus and associated literature. Mr. Spear is available to answer any of your questions.

ELI LILLY & COMPANY

You are cordially invited to visit the Lilly exhibit. Our sales representatives in attendance welcome your questions

about Lilly products. You may be particularly interested in discussing KEFLIN® Cephalothin, or C-QUENSTM Sequential folder containing fifteen 80 mcg. tablets of mestranol plus five tablets each combining 80 mcg. mestranol and 2 mg. chlormadinone acetate.

E. R. SQUIBB & SONS

E. R. Squibb & Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research are available to the medical profession in new products or improvements in products already marketed. At booth number 26, we will be pleased to present up-to-date information on these advances for your consideration.

G. D. SEARLE & COMPANY

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle products of research. Featured will be ENOVID for ovulation control and pregnancy and menstrual disturbances and FLAGYL, a potent, new trichomonacidal agent for trichomonal vaginitis, cervicitis, urethritis and prostatitis.

GEIGY PHARMACEUTICALS

Geigy Pharmaceuticals cordially invites members and guests of the Society to visit its exhibit. The exhibit features important new therapeutic developments in the management of cardiovascular disease as well as current concepts in the control of inflammation; hypertension and edema; depression; obesity; and other disorders, which may be discussed with representatives in attendance.

HERBERT COX SHOES

The major effort of Herbert Cox Shoes, Inc., of Little Rock and Pine Bluff, has been concerned for many years with the maintenance of outstanding facilities and standards for the use of footwear in the wide range of medical application—from orthopedic, general surgery, and pediatrics to rheumatology and obstetrics. The exhibit of Herbert Cox Shoes will cover these contingencies and will be attended by a senior staff member. We will also be displaying some of the new products in footwear therapy.

MEAD JOHNSON LABORATORIES

The Mead Johnson Laboratories' exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about their products.

MEDCO PRODUCTS COMPANY

Medco's direct reading INSTANT Thyroid test will be a feature of our display. The Medco ACHILLEOMETER is a solid state (transistorized) Achilles Reflex Test (A.R.T.) Computer. It permits immediate and accurate diagnosis—answers the problem of the borderline Hypo-Thyroid and response to therapy. As no Electrocardiograph is necessary, the ACHILLEOMETER offers the Achilles Reflex test (A.R.T.) method of testing thyroid function to many additional physicians. Compact (5 and ½ pounds), no warm-up period, desk-top convenience.

MERCK, SHARP & DOHME

The Merck, Sharp & Dohme exhibit has been designed to supplement the physicians' therapeutic armamentarium. Technically trained personnel are present to discuss the

scope and variety of services offered.

PARKE, DAVIS & COMPANY

Medical service members of our staff will be in attendance at our booth to discuss important Parke-Davis specialties which will be on display.

RATHER, BEYER & HARPER INSURANCE AGENCY

Rather, Beyer & Harper are administrators of group plans of disability and professional overhead expense insurance which have been officially endorsed by the State Society. A member of the agency will be present with brochures concerning the insurance plans and will have data on those people presently insured available for reference. He will be happy to discuss the programs with anyone who is not insured or to discuss any insurance problem that a member may have.

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals cordially invites you to visit our display at booth number 16, where we are featuring Mel-laril, Sansert, Cafergot P-B, Fiorinal and Fiorinal with Codeine. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

SCHERING CORPORATION

Schering Corporation invites you to visit our exhibit, booth space number 27, where our representatives will be available to discuss with you any questions you may have on ETRAFON (R), CELESTRONE (R), SOLUSPAN (TM), TINACTIN (R), AFRIN (R) or any other Schering product.

SMITH, MILLER & PATCH

STRASENBURGH LABORATORIES

Strasensburgh Laboratories offers the medical profession a unique group of therapeutic agents. Particularly esteemed are its "Strasionic" (cationic) exchange formulations, which combine dependably sustained effect with convenience of dosage. These have given the name STRASENBURGH a position of distinction in such therapeutic areas as the management of obesity, cough and associated respiratory ailments.

THE STUART COMPANY

A cordial invitation is extended to all members and guests attending this meeting to visit the Stuart Company booth.

Specially trained representatives will be in attendance to answer your questions on new products, developed in our modern laboratories, which have particular interest for the medical profession. Products featured are DIALOSE, DIALOSE PLUS, MYLICON, MYLANTA, STUART PRENATAL, STUART PRENATAL-F, MULVIDREN-F AND MULVIDREN JUNIOR.

THE UPJOHN COMPANY

Professional representatives of the Upjohn Company are eager to contribute to the success of your meeting. We are here to discuss with you products of Upjohn research that are designed to assist you in the practice of your profession. We solicit your inquiries and comments.

WILLIAM P. POYTHRESS & COMPANY

The Poythress exhibit will feature TROCINATE, a unique, direct-acting (musculotropic) antispasmodic drug, and the MUDRANE combinations, established Poythress products for relief of bronchial asthma. SOLFOTON, SOLFO-SERPINE, PANALGESIC and SYNIRIN will also be featured. Your requests for literature and professional trial quantities are cordially invited. Mr. Jack Kimbrough will staff our exhibit.

WILLIAM T. STOVER COMPANY, INC.

The William T. Stover Company, Inc., Little Rock, enjoying its 26th year of service to the medical profession, will occupy Booth Number 29, which will be staffed by informed and qualified representatives—eager to welcome you and assist in any manner possible—as well as to show you the up-to-date developments in the medical and surgical industry.

WORTHEN BANK & TRUST COMPANY

A display of information by Worthen Bank staff members regarding the latest developments in physicians' off-premises bookkeeping service, pioneered by Worthen Bank & Trust Company, will be featured. The extension of the computer's use to the physician's office provides comprehensive reports on services rendered, charges, payments received and adjustments made. Relief from bookkeeping duties allows additional space and time for other functions. Training problems are reduced and control is improved. Names of physicians presently utilizing the Worthen Bank Professional Billing Service will be furnished.

Scientific Exhibits

1. Dr. D. B. Stough, III, Hot Springs, Arkansas
Title: "Multiple Punch Autografts for the Alopecias"
2. Dr. Melvin McCaskill, et al., Little Rock, Arkansas
Title: "Stress Incontinence"
3. Drs. Eugene T. Ellison and Bill Harrell, Texarkana, Texas
Title: "Hemostasis and Support Procedures in Abdominal Hysterectomy"
4. Dr. Joe Scruggs, et al., Little Rock, Arkansas
Title: "Roentgenographic Examination of the Ear"
5. Dr. James Stuckey, Little Rock, Arkansas
Title: "Cleft Lip"
6. Dr. Harry Hayes, Jr., Little Rock, Arkansas
Title: "Fractures of the Mandible"
7. Drs. Hoyt Kirkpatrick and Peter J. Irwin, Fort Smith, Arkansas
Title: "Pneumarthrography of the Knees; a Cine Radiographic Technique"
8. Dr. Neil C. Stone, Conway, Arkansas
Title: "The Arkansas Children's Colony"
9. Dr. Joe Norton, et al., Little Rock, Arkansas

Title: Title not available at press time. Dr. Norton assures us the exhibit will deal with some aspect of x-ray.

10. Drs. John Baber and B. Thompson, Little Rock, Arkansas

Title: "Vagotomy and Pyloroplasty in the Treatment of Duodenal Ulcer"

11. Mrs. Rose Hogan, Little Rock, Arkansas

Title: "The University of Arkansas Medical Center Library"

12. Dr. Tom Fletcher, Little Rock, Arkansas

Title: "Neurosurgical Considerations in Subarachnoid Hemorrhage"

House of Delegates Meetings

FIRST MEETING

1:00 p.m., Sunday, May 1, 1966, Fountain Room, Arlington Hotel

- I. Call to order
- II. Roll Call of Delegates
- III. Report of Credentials Committee
- IV. Introduction of Guests
- V. Adoption of Minutes of 89th Annual Session as published in June 1965 issue of the Journal of the Arkansas Medical Society
- VI. Report of the Council
- VII. Report of Committees
(Reports as published in March Journal may be amended by Committee Chairmen. All reports will be referred to the Reference Committees.)
- VIII. Consideration of Proposed Amendments to the Constitution (See page 472 for copy of proposed changes.)
- IX. New Business
(Notification of vacancies to be filled on State Boards)
- X. Selection of Nominating Committee
- XI. Adjournment

FINAL MEETING

10:00 a.m., Wednesday, May 4, 1966, Fountain Room, Arlington Hotel

- I. Call to Order
- II. Report of Nominating Committee
- III. Election of Officers:
President-elect
First Vice President
Third Vice President
Treasurer
Secretary
Speaker of the House of Delegates
Vice Speaker of the House of Delegates
Councilors (one from each of the ten councilor districts)

Councilors whose terms expire are:

1. Paul Ledbetter, Jonesboro
2. Hugh R. Edwards, Searcy
3. L. J. P. Bell, Helena
4. H. W. Thomas, Dermott
5. Perry Dalton, Camden
6. John P. Wood, Mena
7. Robert F. McCrary, Hot Springs
8. Joseph A. Norton, Little Rock
9. Ross Fowler, Harrison
10. A. S. Koenig, Fort Smith

Delegate to the American Medical Association House of Delegates (term of James M. Kolb, expires December 31, 1966—eligible for re-election)

Alternate Delegate to the American Medical Association House of Delegates (term of C. C. Long, expires December 31, 1966, eligible for re-election.)

- IV. Election of nominee for member-at-large position on the Arkansas State Medical Board
(term of Jeff Baggett, expires December 31, 1966, eligible for re-election)

V. Reports of Reference Committees

VI. Supplemental Report of the Council

VII. Selection of Place of 1968 Annual Session

VIII. Adjournment

REFERENCE COMMITTEES

Reference Committees appointed by the Speaker of the House of Delegates will hold open hearings to discuss the committee reports published in the March Journal, as well as any supplemental reports and resolutions referred to them during the first meeting of the House of delegates on Sunday, May 1. All members are urged to participate in the discussions at the meetings. The committees will meet as follows:

Committee No. 1—C. R. Ellis, Malvern, Chair-

man; Karlton Kemp, Texarkana; Ben O. Price, Little Rock—3:30 p.m., Sunday, May 1, 1966, Cafe 2, Arlington Hotel
 Committee No. 2—Gilbert O. Dean, Little Rock, Chairman; Milton C. John, Stuttgart; John F. Guenther, Mountain Home—3:30 p.m., Sunday, May 1, 1966, Montagu Room, Arlington Hotel
 Committee No. 3—Amail Chudy, North Little Rock, Chairman; Paul Sizemore, Magnolia; Julius Hellums, Dumas—3:30 p.m., Sunday, May 1, 1966, Library, Arlington Hotel.

VACANCIES ON STATE BOARDS

ARKANSAS STATE BOARD OF HEALTH.
 Vacancies occur in the Second and Fourth Congressional districts, the counties of which are listed below. Members from these counties are urged to meet in the Arlington Hotel immediately following adjournment of the House of Delegates meeting on Sunday, May 1, to vote for nominees. Nominations should be reported to the convention registration desk. There must be three nominees for each vacancy.

Second District. Counties in district: Cleburne, Fulton, Independence, Izard, Jackson, Lawrence, Monroe, Prairie, Randolph, Sharp, Stone, White and Woodruff counties. Present member: Dr. Ed D. McKnight, Brinkley, term expires December 31, 1966. Eligible for reappointment.

Fourth District. Counties in district: Ashley, Bradley, Calhoun, Clark, Columbia, Hempstead, Howard, Lafayette, Little River, Miller, Montgomery, Nevada, Ouachita, Pike, Polk, Sevier and Union Counties.

Present member: Dr. Warren S. Riley, El Dorado, term expires December 31, 1966. Eligible for reappointment.

ARKANSAS STATE MEDICAL BOARD. A vacancy occurs in the Member-at-Large position on the State Medical Board. Members are urged to present their nominees for this position to their councilor district representatives on the Society Nominating Committee. Present member: Dr. Jeff Baggett, Prairie Grove, term expires December 31, 1966, eligible for re-appointment.

House of Delegates: Business Affairs

The following reports are brought to the attention of county medical societies. The items reported here represent those received in time for publication in advance of the meeting. All reports will be referred to reference committees and members are urged to attend the opening hearings of the reference committees to express their views.

ANNUAL COMMITTEE REPORTS

Committee on Cancer Control

Thomas F. Dilday, Jr., Chairman

First priority during the past year has been given to efforts to establish a School of Cytotechnology in Arkansas. Initial efforts to establish this school at the University of Arkansas Medical Center were not successful. Other non-profit hospitals in the state have been approached and at present one large hospital is actively seeking a grant which will enable them to establish a school. Efforts are still being continued at the Medical Center and we hope to report success next year in this field.

With the co-operation of the Arkansas State Cancer Commission efforts are being made to establish a program of uterine cancer control at the University of Arkansas Medical Center utilizing the Papanicolaou technique. This program is almost virtually assured. It is hoped that it can be expanded to cover the medically indigent in all areas of the state. With the establishment of a School of Cytotechnology and the alleviation of the marked shortage of Cytotechnologists this can be accomplished.

COMMITTEE ON PUBLIC HEALTH

Ben N. Saltzman, Chairman

The Committee on Public Health continues to function in relation to its various subcommittees. Directly associated is the Committee on Rural Health. The Chairman has received correspondence from the various subcommittees and has attended some meetings of the subcommittees.

SUB-COMMITTEE ON RURAL HEALTH

Ben N. Saltzman, Chairman

The Committee this year has continued to be active in promoting the health features of the Rural Community Improvement Clubs of the state of Arkansas. The Chairman this year has been elected vice-chairman of the state Rural Community Improvement Clubs Association. Rural health has become one of the most important programs in the Association. The state winners have all had excellent health programs. This year the annual Rural Community Improvement Day will be a state Rural Health Conference, followed by an awards banquet and further recognition of the clubs in the state that are carrying on with health programs. The state medical association will once again award plaques to the clubs in the five regions that have done outstanding work in rural health. The activities of the Committee on Rural Health have gained recognition through the Rural Health Council of the American Medical Association. It is believed that the Committee is performing a vital function in the health program for the people of Arkansas.

At a recent meeting of the Council on Rural Health of the American Medical Association, the Chairman of this Committee was elected Chairman of the Council. He now finds himself in an excellent position to continue to promote better health in the rural communities in Arkansas. The Committee will continue to seek out ways in which it can better cooperate with the advisory groups that make up the Arkansas Rural Health Committee. The liaison has been excellent.

SUB-COMMITTEE ON TUBERCULOSIS

Harley C. Darnall, Chairman

The Sub-Committee on Tuberculosis did not have an official meeting during the year 1965. There were several telephone meetings between the members of the Society during the year to discuss problems. The Committee was particularly perturbed with the release to the newspapers by the Arkansas Medical Society at the State Medical Meeting in April 1965, urging the physicians to treat tuberculosis patients in the community hospitals and at home. It was the feeling of the members of this Committee that active cases of tuberculosis with positive sputums should be treated in the Sanatoria which are provided for this. The members of this Committee were of the opinion that the majority of the community

hospitals, in Arkansas, are not equipped to have isolation beds for patients with active pulmonary tuberculosis. The Committee was in agreement with the Resolution passed on April 18, 1960, at the meeting of the Council of the Arkansas Medical Society when Dr. Edgar Easley presented the Arden House report and a list of recommendations for a program to control tuberculosis in this State. Upon the motion of Drs. Thomas and Monfort the Council approved the plan and principles with the provisions the patient must be diagnosed in a hospital before becoming eligible for home treatment.

SUB-COMMITTEE ON PHYSICAL FITNESS AND SCHOOL HEALTH

Jack W. Kennedy, Chairman

A continued effort is being made by this Committee to implement a program of physical examinations and orientation for coaches and personnel at the junior high and high school levels.

This is a new approach to provide succeeding coaches and personnel at the high school and college level with a record of injuries, abilities and the degree of physical fitness of young athletes. Thus providing a permanent physical record during his prep school years.

Standard physical forms standardizing procedures for examinations will be provided; this information will be disseminated to all athletic personnel on each individual athlete for each school in the state.

Details are now being worked out to solidify this program within the coming year before next football season.

SUB-COMMITTEE ON MENTAL HEALTH

William O. Young, Chairman

The Sub-Committee has worked this year to further objectives which were set up in the last few years. As representatives of the Doctors who make up the Arkansas Medical Society we have taken part in reaching many of these goals. Some of the forward steps taken in the state include these:

(1) Members of the Sub-Committee have taken part in planning an overall program for meeting mental health needs for the state, under the direction of the State Health Officer. Many citizens, from many professions and groups, have taken part in this planning program. It is nearing completion and will be presented to the medical pro-

fession and to the people of the state very soon.

(2) The Department of Psychiatry of the University of Arkansas Medical Center instituted two training programs in psychiatric theory and techniques for physicians who are not psychiatrists. These programs extend over several months and are well attended. Members of your Committee helped to plan and help in presenting these programs. The programs seem to be quite successful, but they will be studied to determine other types of postgraduate training that will be helpful to the members of the Society.

(3) The State Hospital, with the new facilities, the VA Hospital, and the University of Arkansas Medical Center have continued to improve and expand their programs for residencies in psychiatry.

(4) Two new comprehensive mental health centers have been located under recent Federal legislation and are being planned now.

(5) There has been an increase in planned psychiatric sections in general hospitals in the state.

(6) Several communities have planned mental health centers which are completely financed by local funds.

(7) There has been an increase in the number of physicians who have promoted and guided mental health planning in their communities. More county societies have appointed mental health committees to work with other interested citizens to meet mental health needs for local communities.

(8) Members of the Sub-Committee have attended several national conferences to study the effect of Federal legislation on Mental Health problems. As an example of the interest of other interested groups, the Arkansas Pharmaceutical Association has arranged to supply drugs to indigent psychiatric patients at cost plus a compounding fee.

We wish to stress the seriousness of the problems we face and urge the members of the Society to participate in the action we feel is necessary for our state and for our profession.

(1) We feel that it is extremely necessary for all members of the Society to support proposed legislation which will implement the plan which has been developed under the direction of the State Health Officer. Proposed legislation will be sent to the various county medical societies. We feel that the active support of all physicians who are members of the Arkansas Medical Society will

be quite instrumental in obtaining the passage of this legislation.

(2) We think that more members of the Society should avail themselves of the training programs sponsored by the Department of Psychiatry of the University of Arkansas Medical Center, or suggest other training programs which will help them meet the mental health needs of their communities.

(3) We urge all members of the Arkansas Medical Society to encourage and cooperate in the planning of psychiatric sections in local general hospitals. We feel that in the very near future psychiatric consultation will be available to enable the physician who is not a psychiatrist to treat a large percentage of the emotional ills of their patients in their local general hospital.

(4) We encourage all physicians to take part in planning for local mental health clinics in their own communities and to see that these clinics have proper medical supervision. We urge all county societies to appoint mental health committees who will be available and willing to work with other citizens groups in planning local mental health clinics or other facilities that might be needed.

The Sub-Committee has continued to work closely with the Arkansas Mental Health Association, the Arkansas Psychiatric Society and with other interested groups in studying the mental health needs of our state.

We feel that the Medicare program, which has been passed by the Federal Government and which will start on July 1, 1966, will present many serious problems in the field of mental health as well as in other areas of medical care. As physicians we occupy special positions of trust and of influence. As citizens and as physicians we must take part in all activities that concern the health of our patients. We must be concerned that we consider all our obligations and responsibilities as physicians.

IMMUNIZATION SUB-COMMITTEE

Wilbur G. Lawson, Chairman

This committee has evolved from the rather limited scope previously covered by the Sub-Committee on Polio. It was thought that present standards of preventative measures made the older committee obsolete. The Sub-Committee feels that there is a remarkable complacency toward broad spectrum immunity of the general popula-

tion because of the success of concentrated efforts in the elimination of polio from our State. Most of us, however, have seen one or more deaths from the preventable diseases in the past two years in spite of long-standing availability of preventative antigens. The present international problems related to transportation, integration, and warfare makes us a vulnerable population in several immunologic respects.

Our proposed activities, which we have already begun in various degrees, include:

- (1) Promotion of physician education in the continued necessity for current immunity practices in the care of private patient practice. In our experience it is not the patient but the physician who is complacent about the need for continued follow-up in the immunization procedures.
- (2) With the cooperation of the Arkansas State Department of Public Health, we are planning to produce a simple, but detailed, placard with adhesive backing for application to the front of the "office refrigerator" in each office of the State so that trained office personnel could assist in promoting proper immunization continuity without detracting from the practitioner's daily schedule.
- (3) Current immunization procedures have been reviewed and a decision made to publicize that system presently endorsed by the American Academy of Pediatrics—although realizing that there will be many variations in actual procedures as dictated by individual practitioner's experiences. We are more interested in the patient receiving the immune products than in the precise methodology.
- (4) The chairman and members of this committee have been active in presentation of talks and publicity releases at physician and public levels to encourage routine adaptation of principles that have been already proven, but neglected, during this era of the "wonder drugs".

SUB-COMMITTEE ON TRAFFIC SAFETY

Louise Henry, Chairman

This committee was formed in 1958 by action of the House of Delegates, according to information received from the Society's headquarters staff, who also states: "Dr. C. Lewis Hyatt, brother of Dr. Robert F. Hyatt, Jr., who was killed in a highway accident, served as the original chairman of the committee. The first activity of the Traffic

Safety Committee was in the area of stressing enforcement of stock laws".

A member of the present committee, Dr. Hugh Edwards, Councilor, was a classmate in Arkansas Medical School of the late Dr. Hyatt. It was Dr. Edwards who urged the Council to endorse the enactment of a bill in the legislature setting up a central office for the issuance of drivers' licenses and records of traffic violators. The Council adopted this resolution, and the news appeared the following day in numerous Arkansas papers.

Dr. J. B. Cross, ophthalmologist, another member of this committee, prepared the vision tests used by the State Police in testing drivers.

Captain Bill Miller, Chief Examiner of the Drivers License Division of the Arkansas State Police, has been advisor at all of our committee meetings.

An excerpt from Captain Miller's letter of May 23, 1965, reads: "It is I who should be thanking you and your committee for the assistance and support you gave in passing Act 555 of 1965. In my opinion this Act, if properly implemented, will do more to alleviate traffic accidents than any safety legislation passed during my sixteen years as a State Policeman. Continued support from your organization will insure the proper implementation and results will be seen in the near future."

We can support the drivers education program in Arkansas. As physicians we need to consider standards of driver fitness.

Serving on the Sub-Committee on Traffic Safety are: James G. Stuckey, Little Rock; Hugh Edwards, Searcy; Joe W. Reid, Arkadelphia; J. B. Cross, Little Rock; C. E. Crawley, Forrest City; W. R. Cothorn, Crossett; Lonnie R. Turney, McGehee.

COMMITTEE ON MEDICAL EDUCATION

Lee Parker, Jr., Chairman

The Medical education committee had one called meeting on September 30th when we met with the Post-Graduate Education Committee of the Medical School. The purpose of this meeting was to discuss post-graduate education programs for the 1965-66 school year.

After extended discussion the following conclusions were made:

- (1) Number of Seminars — It was felt that fewer seminars but of longer duration would be more worthwhile. Four seminars are planned for this

school year—one of one day's duration and three of two days each.

- (2) Subjects: Sept. 23, Respiratory Problems
Feb. 10-11, Perinatal Problems
March 11-12, Surgery
April 16-17 Psychiatry
- (3) Wives: It was decided that no planned activities would be made for wives since most would probably prefer to shop, etc.
- (4) Room Reservations: This will be left to each individual rather than the Medical Center
- (5) Fees: Advance Registration (Non-refundable)
\$10.00
1 Day Seminar—\$25.00
2 Day Seminar—\$40.00
- (6) Notification: Annual program notices will be made available but notices for each individual course will be mailed. The school is to try to arrange for the State Journal to "advertise" future seminars.

It is hoped that these changes will strengthen the seminars with more scope and depth in the subjects covered than heretofore possible.

As chairman of the Medical Education Committee I would like to point out that there are now three committees or sub-committees dealing with the Medical Center. These are the Medical Education Committee, the sub-committee on Postgraduate education and the advance planning committee. I feel that this causes re-duplication of effort and sometimes confusion as to responsibility. I therefore sincerely urge that the three committees be combined into a single group in order to facilitate relationships with the Medical Center.

SUB-COMMITTEE ON POSTGRADUATE EDUCATION

George F. Wynne, Chairman

The Sub-Committee on Post Graduate Medical Education met September 30, 1965 at the University of Arkansas Medical School. The following members of the Committee were present: Chairman, Dr. G. F. Wynne, Dr. James Taylor, Dr. George Mitchell and Dr. John T. Riggins, Jr. Ex-officio Member; Dr. W. K. Shorey, Dean of the Medical School.

The actions of this committee are listed as follows:

1. It was suggested that a program of all post graduate courses be listed in the Journal of the Arkansas Medical Society several times

during the year.

2. The number of courses offered by the University of Arkansas Medical School be reduced to three or four yearly.
3. Programs oriented to specialists would probably appeal to generalists as well; but consideration of the needs of the generalists is of utmost importance.
4. Programs should be a mixture of one and two days in duration but two day programs should be two full days.
5. Guest speakers of national reputation were highly desirable.
6. Program tuition should be increased more in line with other schools. A consensus was reached to the effect that a \$25.00 charge for one day course and \$40.00 for two day courses seemed reasonable. This would also assure high quality of programs. A \$10.00 non-refundable registration fee was also suggested and agreed upon.
7. Scheduling of programs outside of Little Rock (Hot Springs, etc.) would be desirable to physicians in Little Rock.
8. Additional teaching aids, such as closed circuit television, movies, instructions in techniques, too, would be desirable.
9. It was thought that an annual combined meeting of the Continuing Education Committee of the Arkansas Medical Society, The Arkansas Academy of General Practice and the Medical School should be held each May for similar discussion.
10. The program for the 1965-66 year was distributed.

Your Sub-Committee on Post Graduate Medical Education is pleased to present this report. It further suggests that the Reference Committee of the Society instruct the Editor of our Journal to obtain a copy of the schedule of Post Graduate programs that the University of Arkansas Medical School will conduct, and publish this program in our State Journal three times each year. Following is a copy of the program for 1965-66.

UNIVERSITY OF ARKANSAS MEDICAL CENTER PROGRAM CALENDAR

1965

September 23—Current Problems in Respiratory Disease—Department of Medicine

1966

February 10-11 — Perinatal Problems — Depart-

ments of Anesthesiology, Obstetrics and Gynecology, and Pediatrics

March 11-12—Postgraduate Surgery Symposium—Department of Surgery

April 16-17—Postgraduate Psychiatry Symposium—"Medical Hypnosis"—Department of Psychiatry

SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE

M. D. McClain, Chairman
"APATHY"

In regard to the Disaster Committee of the State Medical Society, apathy is the main feature which it has been for quite some number of years. An attempt was made to have a breakfast meeting, with breakfast furnished, on September 19, 1965, inasmuch as the State Council Meeting was being held at this time, and also at this time the chairman and the representative from the State Health Department were present. In addition there were six paramedical people present, who indicated a great deal of interest. None of the other committee members were able to be present due to pressure of their work. At the time of the meeting it was thought that at the local level, more detail might be worked out concerning the availability of doctors, paramedical personnel, drugs and etc., communication and transportation and available care in regards to treatment of the injured.

At the state level the Public Health Department has an excellent plan available when it is needed, but of course inasmuch as communication is always the weakest link, there might be some difficulty in getting this down to the local level if some disaster should strike without any warning. Everyone thinks "it won't happen here."

In December 1965 fourteen blocks in Camden, Arkansas, were evacuated due to the danger of toxic fumes from a train wreck which had occurred. There was some radio communication at the time but my second hand information is that the decision to evacuate was not with any consultation with the medical personnel. Again we come back to the link of communication. I also understand that the hospital was able and ready to put the medical plan in effect at a moment's notice if needed.

The Council of the Arkansas Medical Society voted funds for the transportation and hotel expenses for a member of the committee to attend the symposium on the national level in Chicago

in the Fall, but it was not feasible for any committee member to attend this meeting, therefore the funds were not used.

This committee needs someone with the interest, the time to travel, and the inclination to participate. I'm sure our next president would like to have some volunteers.

ANNUAL SESSION COMMITTEE

John V. Busby, Chairman

The convention program arranged by the Annual Session Committee appears in another section of this issue of the Journal.

COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS

F. Sisco, Chairman

The Committee of Veterans Administration Affairs met Sunday, September 19, 1965, for a committee meeting. There was only one member present, Dr. Chalmers S. Pool, and the Committee Chairman, Dr. Sisco. A quorum was not present, therefore no business could be transacted but the following recommendations were discussed.

1. That there should be closer liaison between the local medical societies and VA staffs—encouraging membership and attendance at meetings of the local medical societies. This would help produce better understanding of the care of veterans.

2. Also that the Veterans Administration on discharge from the hospital send necessary information to the local doctor on the care and treatment of the veteran while in the hospital. Also the family physician send all information possible to the Veterans Hospital when recommending hospitalization of a veteran.

COMMITTEE ON INSURANCE

Thomas D. Honeycutt, Chairman

The Northwestern National Life Insurance Company, underwriters for the Arkansas Medical Society Group Life Insurance Program, administered by Mr. Meyer Marks, Little Rock, has notified this Committee that:

1. Beginning early in 1966 and for a period of some 30 to 60 days, all present subscribers to the Group Life Insurance Program will be offered an additional \$10,000 of life insurance coverage regardless of present health. For some members who have availed themselves of all offered Group Life Insurance this will amount to \$30,000 of coverage.

2. If a satisfactory percentage of the membership can be obtained, the Group Life Insurance Program will be open for enrollment again (regardless of health) for those members who have not availed themselves of any life insurance and will make available to them \$10,000 of life insurance.

3. Any new members coming into the Society will be able to purchase \$20,000 and will be given the right to reserve the privilege of purchasing an additional \$10,000 of life insurance at some time in the first two years of his membership in the Society. NWLIC has also now announced rate reductions effective February 1, 1966, for all members who are under age fifty. Examples of these rate reductions on semi-annual premiums for \$10,000 of life insurance are ages 30, \$16.50 (old rate \$18.50); ages 30-39, \$21.50 (old rate \$23.50); ages 40-49, \$42.50 (old rate \$44.10).

In addition to these premium reductions the company will credit to the August 1, 1966, billing an 8.2% dividend which will further reduce premiums for the 1966 semi-annual payment.

These rate reductions and dividend payments have been made possible by the co-operation of Mr. Marks and his close supervision of our group plan. He has worked diligently to make the group life insurance plan available to as many members of the Society as would avail themselves of this program and has updated the plan at least annually through the five to six years it has been in operation.

Several members of the Insurance Committee have continued to be active on the HIP Committee where questions involving insurance companies, physicians and hospitals are discussed.

CONSTITUTIONAL REVISIONS COMMITTEE

C. R. Ellis, Chairman

The following proposed amendments to the Constitution and By-Laws of the Arkansas Medical Society were approved by the House of Delegates at its meeting on April 28, 1965. They were published in the June 1965 issue of the Journal. These proposed changes will again be considered at the May 1, 1966, meeting of the House of Delegates, at which time final action will be taken. Amend the By-Laws, Chapter 1, Section 1, as follows:

Change title of Section 1 to "Section 1 (a)":

(a) The name of a physician on the properly certified roster of members of a component society which has paid its annual assessment,

shall be prima facie evidence of membership in this Society.

Add to new Section 1 a sub-section (b):

(b) Membership in this Society shall consist of the following classifications:

- (1) Provisional
- (2) Regular
- (3) Life
- (4) Affiliate
- (5) Affiliate membership as intern or resident
- (6) Military

Amend the By-Laws, Chapter IX, Section 5

Change Section 5 to add the word "officers" after words "Section 5" and to add new paragraph as follows:

(a) Elections

Component societies shall consist of not less than five members, and there shall be a president, secretary-treasurer and board of censors as set forth in (b) and no member can hold more than one of such offices at one and the same time. There may be such other officers as may be required, including vice-president and board of trustees, also delegates and alternates to the State Society. The term of all officers except the censors shall be for one year. All officers and delegates to the State Society shall be elected during the month of December or at the last meeting of the year in the instance there is no meeting in that month. Vacancies in the offices referred to in this by-law shall be filled in the manner stated in the Society by-laws; but when no provisions are thus made for any such contingency, such vacancies shall be filled by the component county society president, until the time for the annual election of officers.

(b) Election of Censors

(1) In those county societies of less than 200 members, the Board of Censors shall be composed of three members. In societies of ten or less, the Society may act as Committee of the Whole in lieu of the Board of Censors. The term of office of the censors shall be three years, and they shall be so elected that but one vacancy normally occurs each year, and no member shall succeed himself.

(2) In those county societies of more than 200 members, the society may elect to increase the Board of Censors from not less than three (3) to not more than seven (7) members. The censor shall serve terms of three

(3) years and then elections shall be so arranged that no more than three (3) shall be elected to any one year except for the first year that the society elects to increase the size of the board. No member may succeed himself. This year the election of the additional members shall be so arranged that the terms of office of newly elected members shall not conflict with the future election of members as described above.

Add paragraph "(c)" Delegates—This paragraph is transferred from present Section 11:

(c) Delegates

At some meeting in advance of the Annual Session of this Society, each county shall elect a delegate or delegates to represent it in the House of Delegates of this Society, in the proportion of one delegate to each twenty-five members, and one for each major fraction thereof, and the secretary of the county society shall send a list of such delegates to the executive vice president of this Society at least ten days before the Annual Session.

Add paragraph "(d)" Secretaries, sub-paragraph (1)—This was transferred from present Section 12:

(d) Secretaries

(1) The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report, he shall endeavor to account for every physician who has lived in the county during the year.

Add paragraph "(d)" Secretaries, sub-paragraph (2)—transferred from Section 13:

(2) The Secretary of each component society shall forward its assessment together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county, to the executive vice-president of this Society on January 1, and not later than March 1 of each year.

Add following new paragraphs as sub-paragraph "(e)":

(e) Board of Censors

The Board of Censors of component county societies shall examine into and report on the qualifications of applicants for membership in their respective organizations and shall ascertain from the executive vice president what the records of his office show in regard to the past conduct of any such applicants, before making report to their respective societies. The Board of Censors shall review the record of each provisional member at the termination of the provisional period and shall present the same to the society with recommendation for or against regular membership.

The Board of Censors will provide supervision and guidance in matters of medical ethics and etiquette for provisional members. Any time during the provisional period they may recommend to the society that the provisional members be dropped from the society and this may be done by a two-thirds ($\frac{2}{3}$) majority vote of those present and voting at a regular meeting of the county medical society if a quorum of the Society is present at the time of voting. The Board of Censors shall supervise the ethical deportment of all the members of its society and shall counsel individual members where warranted.

The Board of Censors shall have the authority to investigate on their own initiative suspected violations of conduct when they have reasonable grounds to suspect unethical conduct and to prefer charges when indicated after thorough investigation. They shall receive and investigate charges of unethical conduct made against members of their respective societies by another member, and shall review the findings of the County Public Grievance Committee and the Adjudication and Medical Testimony Committee and make proper disposition of each case.

Amend the By-Laws, Chapter IX, to designate Section 6 title as "Members" and to re-number present Section 5 as Section 6 (a):

(a) Each county society shall judge the qualifications of its own members, but as such societies are the only portal of this society and to the American Medical Association, every reputable physician who possesses the eligibility qualifications for membership required by Article IV, Section 2, of the Constitution of this Society, and who does not practice or claim to practice nor lend his support to any exclusive system of medicine shall be eli-

gible to membership. No physician or surgeon who solicits patients or business for himself, or for an association or other organization of which he is a member, or by which he is employed, or in which he is interested, shall be eligible for membership in this Society, and no physician who works for, is employed by, or is interested in, any association or organization which solicits patients, members or physicians, shall be eligible for membership in this Society. Any member of the Society who shall hereafter violate any of the provisions hereof shall be expelled from the Society. Before a charter is issued to any county society, full and ample notice shall be given to every such physician in the county to become a member. Add new provision on classification of members as sub-section (b) of Section 6:

(b) Classification of members

(1) Provisional

Component county societies shall provide a provisional period for applicants seeking membership in their county society of twelve (12) months. New members accepted on a provisional basis shall have all the privileges of regular membership in the society, except as provided in this section of these by-laws and in Section 5 (e). Provisional members shall not have the right to hold elective office, endorse application for membership or serve as a delegate or alternate delegate to the Arkansas Medical Society.

When a provisional member is dropped from the county medical society before the end of the provisional period by means provided in Section 5 (e) of this chapter, he may not apply again for membership in any component county medical society for a period of one year if he continues to reside under the jurisdiction of that component county medical society.

At the end of the provisional period, a provisional member *shall* again be considered by the Board of Censors of said component county medical society, and elected by same before his membership becomes permanent.

If, at the end of the provisional period, the provisional member fails to be elected to regular membership, the Board of Censors of said component county medical society will provide counsel directed toward

rehabilitation of the rejected physician. The rejected physician may also request the Board of Censors to recommend to the society a further period of provisional membership; and it *may* be granted, the time at which it may begin and the duration of the additional provisional period to be stipulated by the Board of Censors in its recommendation in each individual case, though it may not exceed a period of one year from the date of rejection by the county society. At the end of this additional period of provisional membership, the candidate will again be considered by the Board of Censors, who will place his name before the county society again with recommendation as to acceptance or rejection. If the provisional member fails to be elected to regular membership after the second provisional period, he may not again apply for provisional membership in any component county society until one year has elapsed after the second rejection by the society or upon appeal to the Council of the State Medical Society as provided in Section 7, Chapter IX of these by-laws.

All provisional members shall have attended at least one orientation program given by the Arkansas Medical Society before being considered for regular membership. Qualifying orientation programs shall be offered at the time and place of the Annual Session of the Arkansas Medical Society and at one other time as set by the Council during each year.

Intern membership, resident membership and military membership shall not be considered as a substitute for any part of the twelve (12) months of provisional membership.

Any member accepted on transfer from another component county medical society shall also serve twelve (12) months as a provisional member and shall attend the orientation program, unless such member has previously attended the orientation program presented by the Arkansas Medical Society, before being considered for regular membership.

(2) Regular

The acceptance of the privilege of regular membership carries with it the obligation and privilege to assume the duties

of any office to which the member may be elected or appointed by the county medical society and the Arkansas Medical Society.

(3) Special Memberships

(a) Life

An active member who shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or elsewhere in the United States, shall, upon establishing the above facts to the satisfaction of his county medical society, and upon the recommendation of such society, be granted the status of a Life Member. Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.

(b) Affiliate

An active member in good standing in his county society may, upon the recommendation of such society, be granted affiliate membership with full voting and other privileges where one or more of the following conditions exist: retirement from active practice, physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and a member must be recommended each year for such special status by the secretary and president of his county medical society following a review and re-assessment of his particular situation. An affiliate member shall enjoy full membership privileges and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him for such year.

(c) Affiliate for interns and residents

An annual affiliate membership shall be granted interns and residents, provided they are fully or partially ex-

cused from the payment of county society dues, and provided the request for exemption is transmitted through a component society of the Arkansas Medical Society. The requirement for active membership prior to exemption shall be waived for such affiliate members. This type of member shall be accorded full privileges except that he may not vote or hold office, and he shall receive the Journal of the Arkansas Medical Society.

(d) Military

Regular members of the Arkansas Medical Society who are in the service of the armed forces of the United States, not as career officers, may be classified as military members, and carried on the rolls of their respective county societies as such. Military members shall have a waiver of dues during the time of service, provided that they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of membership shall be issued to them for each year.

Amend Chapter IX to re-number present sections as follows:

- Section 7. (Old Section 6)
- Section 8. (Old Section 7)
- Section 9. (Old Section 8)
- Section 10. (Old Section 9)
- Section 11. (Old Section 10)
- Section 12. (Old Section 14)

BUDGET COMMITTEE

W. R. Brooksher, Chairman

The Budget Committee has approved the following budget for 1966:

INCOME		
Membership dues		88,100.00
Journal Advertising:		
Local	5,900.00	
National	16,100.00	22,000.00
Booth Income		6,000.00
Annual Session Income		1,250.00
AMA Reimbursement		500.00
Income from Medicare		12,600.00
Miscellaneous and Rosters		100.00
Interest on Government Securities		2,500.00
Retirement		327.00
		<hr/>
		\$133,377.00
EXPENSE		
Salaries:		
Medicare	7,061.00	
Journal	10,200.00	

AMS	23,064.00	40,325.00
Travel and Convention		10,000.00
Taxes		
Medicare	302.00	
AMS	894.00	1,196.00
Retirement Fund		
Medicare	1,092.00	
AMS	4,399.00	5,491.00
Stationery and Printing		
Medicare	900.00	
AMS	1,200.00	2,100.00
Office Supplies and Expense		
Medicare	1,500.00	
AMS	1,900.00	3,400.00
Telephone and Telegraph		
Medicare	300.00	
AMS	2,900.00	3,200.00
Rent		
Medicare	500.00	
AMS	1,636.00	2,136.00
Postage		
Medicare	400.00	
AMS	3,500.00	3,900.00
Insurance and Bonds		
Medicare	420.00	
AMS	1,423.00	1,843.00
Auditing		
Medicare	475.00	
AMS	300.00	775.00
Council Expense		900.00
Journal Printing and Expense		23,000.00
Annual Session		7,000.00
Senior Medical Day		400.00
Public Relations		1,000.00
Dues and Subscriptions		1,350.00
Contributions and Gifts		650.00
Woman's Auxiliary		1,200.00
Legal Services		2,500.00
Special Committees		1,600.00
Rural Health		500.00
Miscellaneous		300.00
Freight and Express		60.00
Office Equipment		550.00
Replace Funds Used From Reserves		7,329.00

		\$122,705.00

SUB-COMMITTEE ON LIAISON WITH THE NURSING PROFESSION

W. Myers Smith, Chairman

The committee chairman has met twice at the Arkansas League for Nursing with a state-wide Planning committee for the Professional Nurse Short-nurse traineeship program. Mr. Paul Schaefer, our executive vice president, has met with them many more times. No questions have arisen which it was felt necessary to refer to the Society or even to the entire Liaison committee.

The immediate program of interest to Medicine is the annual convention of the Arkansas League for nursing on April 14-15 at the Hotel Lafayette, Little Rock. Medicare will be discussed by representatives of Federal agencies, and it will be of direct interest to physicians, hospital and nursing home administrators, nurses and aides.

The next and most important program of interest to medicine is planned for the week including June 7-8, and deals with legal problems in patient care, responsibilities of physicians, hospital and nursing home administrators, pharmacists, nurses and aides, the delegation of medical functions, and avoidance of lawsuits. This also will be in Little Rock at one of the hotels.

SENIOR MEDICAL DAY COMMITTEE

Bill Dave Stewart, Chairman

The committee planned a banquet with guest speakers for the University of Arkansas Medical School Seniors last year that followed the general format of previous Senior Day Banquets. It appeared that this effort by the Arkansas Medical Society was appreciated by the senior students and that the guest speakers were well received. Plans have not been formulated for the 1966 Senior Day as yet.

COMMITTEE ON MEDICINE AND RELIGION

Jae Nartan, Chairman

The Committee on Medicine and Religion of the Arkansas Medical Society has not had a formal meeting during the past year.

There has been activity. There was a very fine conference on Medicine and Religion put on at the University of Kansas School of Medicine. This was publicized throughout our State and many physicians and clergy and lay persons from Arkansas attended this meeting.

It was intended that we would have a similar meeting held at the University of Arkansas School of Medicine this past fall but the pressure of other events caused us to put the meeting off. The meeting is now being planned. The plan will be circulated among members of the Committee. If approved, the plan will then be implemented in the spring of 1966.

Basically, the plan would be to have a Medicine and Religion presentation. To invite the doctors and the clergy of the greater Little Rock area and the surrounding area. The proceedings would be taped and edited and would be available to other groups for presentation. We would encourage similar meetings in the congressional districts over the State to get closer to the individual physician over the State.

We invite your attention to the various recurring news releases concerning the AMA department of Medicine and Religion that appear in the AMA news and in the Journal of the Amer-

ican Medical Association. There are some scheduled TV presentations on Medicine and Religion on a nationwide basis. Please consult your papers and we invite your attention to those programs. If you should make the AMA meetings, there is always now a presentation on Medicine and Religion as a part of or preceding the larger AMA meetings. They will be worth your time.

We have worked up quite a file of interested lay persons and doctors over the State who have expressed interest in participating in Medicine and Religion programs. If you have any further thoughts or can send any names of persons who are qualified or who are interested, please do so to me at my office address, 500 South University, Little Rock.

LONG RANGE PLANNING COMMITTEE FOR MEDICAL CENTER

T. H. Wortham, Chairman

The Long Range Planning Committee for the Medical Center was appointed by Doctor C. Randolph Ellis to aid the Medical Center in Little Rock in the area of long range planning and to help solve any immediate problems. The committee's first activities were centered around the last legislative session. Members of the Committee worked diligently and it was felt with some success as the legislature appropriated funds for air conditioning the Medical Center Hospital, restored the Center's budget to the level recommended by the Committee on Higher Education Finance, and appropriated other monies for remodeling the laboratory and to build private care facilities for private patients.

During the past year several conferences with the leadership of the Medical Center have been held. The Center is now detailing plans for orderly growth and development during the rest of the 1960's. When these plans are completed the Medical Society will be informed of the direction and progress of these plans. These plans include an answer to every suggestion gathered by the Committee during its meetings. It includes overnight stay area, new clinics, more hospital beds, etc. The Committee has been pleased to have been consulted on these future plans.

The Medical Center will open its new private patient areas in the summer. The future of the Medical Center, in the opinion of its leadership, lies on the development of private referrals for reasons of medical illness and specialized technol-

ogy rather than referral because of economic reasons. An extensive visitation schedule to explain private referrals as well as other developments at the Center throughout the State will be started in the near future. A task force of Medical Center personnel and members of this Committee will present the program to the doctors of the State. It is hoped to enlist their support and referral of the patients to the Center.

The Committee and its ten members throughout the councilor areas remain at the disposal of the Society for suggestions and for help in solving any problems with the Medical Center. Any comments will be accepted with thanks.

H.I.P. COMMITTEE

Guy R. Farris, Chairman

The medical segment of the Hospital, Insurance and Professional Committee met quarterly during the past year with the other two segments of the committee. Various items of general interest to all parties were discussed.

The majority of items under discussion concerned the Insurance and Hospital segments of the committee, although several cases involving charges by physicians to insurance companies were adjudicated to the satisfaction of all concerned.

Other items that were discussed concerning all segments of the committee were as follows: (1) liability of hospitals when patient is allowed to leave hospital on pass, (2) Responsibility of insurance carrier for continuing to pay for hospitalization while patient is able to leave hospital for short period of time, (3) Physician's responsibility when he writes orders on hospital record that allows patient to leave the hospital for a period of time.

Also coming under discussion was the demarcation of a patient's hospital stay from acute care to nursing home care, and the necessity of the physician to so signify on the patient's chart in order to determine the liability of the insurance carrier.

Medicare and its effect on hospital, insurance, and professional relationship was discussed at length at several meetings.

The Physician segment has been increased by Council appointment to consist of one representative from each Councilor district.

I would like to express my appreciation to the physicians on the committee for their interest and cooperation in carrying out committee responsibility.

**ADJUDICATION COMMITTEE FOR
BLUE CROSS-BLUE SHIELD**

Bill D. Stewart, Chairman

Since this committee was organized a few months ago it has met twice with the Blue Cross-Blue Shield personnel assigned to the problem. At the first meeting approximately twelve cases were presented to the committee by Blue Cross-Blue Shield. In each of these cases there was the question of whether Blue Cross-Blue Shield should pay benefits or not. The question of pre-existing disease and the question of admission to hospital for diagnostic studies only were the two prominent problems presented by these cases. At the first meeting the committee did not feel enough information was available on most of the cases. Therefore, at the second meeting Blue Cross-Blue Shield had obtained copies of hospital records and these were reviewed. Each case was considered individually and considerable time spent in deliberation. The committee sought carefully for justification to recommend to Blue Cross-Blue Shield that the claims be paid. In some cases the committee recommended that Blue Cross-Blue Shield pay the claims and others the committee was unable to find justification for payment.

SPEAKERS BUREAU

G. Thomas Jansen, Chairman

During the past year, all members of the Arkansas Medical Society were solicited as volunteers for the Speakers Bureau. The response to this request was gratifying, and we now have a list of suggested presentations to cover most topics of current medical interest. A brochure listing these topics has been prepared and circulated to the program chairmen of over 2,000 organizations in the state. The early response to this brochure is encouraging and a number of engagements have been filled. It would be our intent that this pamphlet should be sent to these organizations from time to time, and that the members of the Society should be solicited every few years so that topics and participants could be kept current.

**FIRST COUNCILOR DISTRICT
PROFESSIONAL RELATIONS COMMITTEE**

F. E. Utley, Chairman

There have been no complaints or problems presented to the Committee other than "special report" cases under the Medicare Program. The Medicare cases were satisfactorily settled.

**SECOND COUNCILOR DISTRICT
PROFESSIONAL RELATIONS COMMITTEE**

M. C. Hawkins, Jr., Chairman

Several instances relative to fees charged by physicians through the Medicare Program have been referred to this committee for a solution. Controversial problems have been handled through correspondence with my committee members.

One complaint dated 8 November 1965 is from a lady in Cave City, Arkansas. She complained of the medical care in her area, and was critical of the two hospitals and some of the physicians in Batesville. After conferring with one of my committee members in Batesville, I wrote to the lady to express the regret of the Arkansas Medical Society at the shortage of doctors, not only in Cave City, but in other areas of Arkansas as well. I further advised her that the Arkansas Medical Society is doing its best to interest young doctors in going to areas where they are actually needed. I gave her some additional advice relative to procuring medical care in her area, which I hope will be helpful.

**SIXTH COUNCILOR DISTRICT
PROFESSIONAL RELATIONS COMMITTEE**

Paul Hughes, Chairman

As Chairman of the Professional Relations Committee of the Sixth Councilor District, I am happy to report to you that there have been no major problems during the past year. The minor problems that have arisen, have been settled without difficulty.

**SEVENTH COUNCILOR DISTRICT
PROFESSIONAL RELATIONS COMMITTEE**

C. F. Peters, Chairman

In the year 1965 the business of this committee concerned itself solely with the processing of Medicare claims.

As far as is known, these claims were processed to the satisfaction of all concerned.

REPORT OF THE PRESIDENT

C. Lewis Hyatt, President

My year as president of the Arkansas Medical Society has been remarkably full for me and I believe unusual enough to justify a "President's Report" covering the period.

My term began in April of 1965 amid the final disheartening skirmishes preceding medicine's defeat in the twenty-year battle to prevent the extension of medical care by the government as a service

under social security. The enactment of the law necessitated a re-evaluation of the position of organized medicine and the attitudes of individual physicians. The process of this soul-searching, and its results, required much travel—a great many meetings within the State, as well as in Chicago, New York, and Washington—and long and sometimes spirited debate among organizations, individuals, and groups. Finally, there were many unpleasant decisions to be faced regarding the actual mechanics of the new law. But the problems of Medicare were only a backdrop for the routine work and the new programs undertaken by the Society.

One innovation was the Officers Conference held in September in the Hotel Marion in Little Rock. The program was designed to acquaint members with the workings of the Society, as well as to stimulate those having committee appointments and other positions of responsibility to a greater interest in their work. An excellent program was presented by members of the Society. The meeting was well attended by approximately 120 people who seemed to be pleased by the program. Meetings such as this are an added expense to the Society and are a great deal of work for those planning the programs and participating in them, but it is my opinion that they are well worthwhile and I recommend that they be continued.

Another new program planned in the Spring of 1965 and put into effect in the Fall was the Speakers Bureau of the Arkansas Medical Society. The membership of the Society was polled for volunteers to make speeches to civic clubs and other organizations throughout the State. One hundred and twenty members offered to talk on selected subjects. An attractive brochure was prepared and over 2,000 organizations in the State were circularized with the brochure. By February 1st, over 60 talks to various organizations throughout the State had been scheduled. The medical profession is indebted to those physicians who take their time to represent the Arkansas Medical Society in this worthwhile public relations effort. It is anticipated that similar brochures will be mailed to an increasing number of organizations periodically, keeping up a continuous demand for speakers from among our membership. This program adds to the work of the headquarters office and increases expenses, especially the telephone, but it is a great forward

step in improving organized medicine's public image.

With the advent of Medicare, the activities of the American Medical Association and its contacts with the State Societies have necessarily increased. The year 1965 was marked by special meetings of the House of Delegates of the AMA and special AMA committee meetings, requiring attendance by Arkansas representatives.

In order to be certain that the membership of the Arkansas Medical Society had ample opportunity to participate in the decisions of the Society on Medicare, two special meetings of the House of Delegates were held. The Council of the Arkansas Medical Society met in extra sessions to discuss policy and courses of action necessitated by the new law. The Executive Committee of the Council met in Little Rock several times and frequently by telephone conference call. It was necessary to decide on a wise policy with regard to the new law, to devise a statement of this policy and to consider the selection of an intermediary to act as fiscal agent between the physicians and the Federal Government for the administration of the law. After considerable investigation and discussion, the Council recommended, and the House of Delegates endorsed, the nomination of Blue Cross-Blue Shield as intermediary for Part "B" covering physicians' services under the new law.

Although the Executive Committee has been active in its capacity as Liaison Committee with the Welfare Commission since the inception of the Kerr-Mills Law in 1961, a concerted effort was launched in February of this year to enlarge and consolidate areas of mutual assistance and cooperation between the Medical Society and the Welfare Commission. This work will necessarily be continued in the future, requiring frequent meetings with the Welfare Commission in an effort to assist the commissioner and to establish practical and acceptable regulations for the government-controlled medical programs.

It is my feeling that this has been a year of fruitful effort by a great many people. Coming years will require more effort by more people and it is my hope that physicians in their own self interest will, in the future, give more time to the cooperative efforts of their medical organization, their community, and to their political interests.

I would like to take this opportunity to express my sincere appreciation for the great amount of time and effort given by so many physicians of

the Arkansas Medical Society. I was not aware of the effort until this past year. When I see the work being done by our efficient headquarters staff under executive vice president Paul Schaefer and the reports and activities of Arkansas Medical Society officers, AMA Delegates, state delegates and councilors, state and county committees and physician members of boards and commissions and civic groups over the State, I am pleased and grateful for our profession.

ARKANSAS STATE ADVISORY COMMITTEE TO THE SELECTIVE SERVICE SYSTEM

Gerald H. Teasley, Chairman

Until the latter part of 1965 there was very little activity within the Medical Advisory Committee; however, during the Fall of this year considerable interest was activated as a result of many physicians being called for physical examination by the Selective Service System.

As was explained in the recent issue of the Arkansas Medical Journal, these examinations were not preliminary to an immediate call to active duty, but were simply to set up available individuals who might be called at a later time.

At present, it is not known what the future call from Arkansas might be. You can rest assured that your representatives on the Medical Advisory Committee to Selective Service will consider not only the availability of the individual who might be called to active duty, but will also seriously review the essentiality of this individual to the community which is being served. It is our opinion that the individuals who have been selected from the various districts of the State Medical Society have done an excellent, although a thankless, job during the past ten to twelve years in assisting in the orderly call to active duty of those physicians needed by the Military Service. It has been their hope at all times to measure the worth of the individual to the local community against his worth in the Military Service. Any mistakes which might have been made, have not been made carelessly. They have been made after due consideration on all facets of the problem. It is our hope that this will continue to be true throughout the coming months, and years.

REPORT OF THE COUNCIL

H. W. Thomas, M. D., Chairman

The Council met on January 23, 1966, and transacted the following business:

I. Welcomed the officers of the Arkansas

Chapter of the Student American Medical Association to attend the Council meeting for the purpose of improving communications between the practicing physician and medical students.

II. Heard a report by Drs. Whittaker and Thomas on the AMA meeting on Title XIX of the Medicare law held in Chicago.

III. Approved the actions of the Executive Committee dated December 22, 1965. These actions included:

1. A decision to hold a dinner for the president of the American Medical Association.
2. Appointed a 21-man committee to represent the medical profession in setting policies for the administration of the Medicare law by Blue Cross-Blue Shield of Arkansas.
3. Accepted with regret the resignation of Dr. Louis K. Hundley, because of health, as chairmen of several important committees of the Society. Dr. Hundley was voted special commendation by the Council for his many years of excellent work on behalf of the medical profession. The Executive Committee appointed members to take the places vacated by Dr. Hundley's resignation.
4. Appointed Drs. L. A. Whittaker and H. W. Thomas to attend a conference on Title XIX of the new Medicare law to be held in Chicago.
5. Decided to ask plastic surgeons to make their fee representations to the surgery members of the Fee Committee.
6. Voted to recommend that the Society co-sponsor with the Arkansas Hospital Association a workshop on the new Medicare law to be held in Hot Springs May 11-12.

IV. Voted not to accept institutional wine advertising for the Journal of the Arkansas Medical Society.

V. Voted commendation to the Miller County Medical Society for its leadership in areawide planning of medical facilities.

VI. Moved to request the Society's Committee on Hospitals to take action to assist the Miller County Society and any other county society in actively participating in areawide planning.

- VII. Recommended to the Committee on Constitutional Revisions that it consider an amendment to establish a standing committee on areawide planning.
- VIII. Voted to request the Committee on Liaison with the State Board of Health to nominate members of an advisory committee to be appointed by the State Health Officer to assist him in setting up rules and regulations for the policing of laboratories within the State.
- IX. Referred to the Annual Session Committee a proposal by the Mead Johnson Company that it award a prize for the best scientific exhibit at the Annual Session.
- X. Received for information a State Tuberculosis Association suggestion that mobile x-rays be used in the Northern counties of the State for a mass program to detect tuberculosis.
- XI. Voted an editorial change in the Council minutes of October 31st to indicate that references to the California Relative Value Schedule be the current California Relative Value Schedule.
- XII. Referred negotiations for renewal of the Military Dependents' Medical Care contract to the Medicare Negotiating Committee, chaired by Dr. C. C. Long.
- XIII. Adopted a resolution calling for the use of brand name and combination pharmaceuticals in government medical care programs. The resolution opposed the use of so-called generic drugs in the program.
- XIV. Adopted a resolution opposing the repeal of Section 14(b) of the Taft-Hartley Act.
- XV. Voted to have a resolution drawn and published memorializing the late Dr. Joe F. Shuffield.

REPORT OF THE ARKANSAS STATE MEDICAL BOARD

January 1, 1965-January 1, 1966

The Secretary of the Arkansas State Medical Board makes the following report of the activities of this Board since the last meeting of the Arkansas Medical Society:

The Officers and Members are as follows:

Jeff Baggett, M. D., Chairman
Hugh R. Edwards, M. D., Vice-Chairman
Joe Verser, M. D., Secretary-Treasurer
Garland D. Murphy, Jr., M. D.
Frank M. Burton, M. D.
Wm. A. Snodgrass, Jr., M. D.
H. J. Hall, M. D.
Earle D. McKelvey, M. D.

John F. Guenther, M. D.
Eugene R. Warren, Attorney

The Board investigated every case of violation of the Medical Practice Act reported to the Secretary during the year. No court convictions were obtained, but there are three cases pending. Three injunctions were issued. The Board revoked the licenses of six physicians.

A yearly financial report of the Board's activities, prepared by Johnston, Freeman & Company, Certified Public Accountants, was sent to and approved by the Council of the Arkansas Medical Society.

Following is a report of the Board's proceedings during the past year:

Physicians registered for 1965:	
Resident	1676
Non-resident	1091
Physicians licensed by examination	87
Physicians licensed by reciprocity	38
Physicians certified to other states	100
Licenses revoked for non-payment of annual registration fee	21
Licenses suspended for non-payment of annual registration fee	23
Court convictions obtained	0
Cases pending	3
Injunctions issued	3
Physicians placed on probation for violation of Arkansas Barbiturate Act	5
Licenses revoked	6

FINANCIAL REPORT

January 1, 1965-January 1, 1966

Cash balance in bank—Jan 1, 1965	\$ 5,095.13	
Time deposits	21,086.58	
		26,181.71

RECEIPTS:		
Registration fees	\$ 7,733.00	
Certification fees	1,411.00	
Reciprocity fees	4,500.00	
Examination fees	4,600.00	
Directories	648.00	
Physical Therapy fees and dues	304.00	
Medical Corporation dues	155.00	
Miscellaneous	714.69	
Interest on time deposits	843.46	20,909.15

Total Cash Available 47,090.86

DISBURSEMENTS:		
Salaries, FICA Taxes, Board Members' fees & expenses	\$10,273.79	
Attorney's fee, expenses and investigations	3,477.18	
Dues and expenses to Federation of State Boards of the U.S.	800.00	
Office rent, supplies, printing, telephone and postage	3,816.24	
Refund of fees	223.00	
CPA audit	175.00	
Physical Therapy expense	27.00	
Miscellaneous—returned checks, bond, box rent, etc.	409.19	19,201.40

Cash balance in bank—Jan. 1, 1966	\$ 5,959.42	
Time deposits	21,930.04	27,889.46
		\$47,090.86

Committee on Hospitals

Joseph A. Buchman, Chairman

This committee respectfully submits its report for the year of 1965 and 1966.

We have had several informal discussions concerning medical needs of the hospitals and it is the feeling of this committee that its primary objective should be to facilitate the care of the patient in the emergency room and then to also work with the ambulance companies in the trans-

portation of such patients to larger centers.

The program for the committee is at the present time still being formulated and an outline is being drawn up.

It is hoped that the committee would be able to remain more or less intact for another year in order to complete its objectives.



Golf Tournament

The golf tournament will be held at the Belvedere Country Club. Scores cannot be submitted prior to Tuesday afternoon for tournament play. There will be cards and/or caddies available and the cost will be \$3 a round for the green fee, plus the charge on the cart.

Dr. Thomas E. Burrow is chairman of the Golf Tournament Committee. Other committee members are Dr. Robert F. McCrary, Dr. D. B. Stough, III, and Dr. James C. McMahan, all of Hot Springs.

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April, 1966

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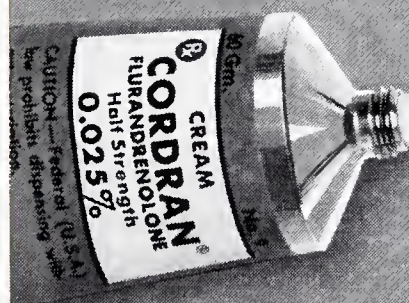
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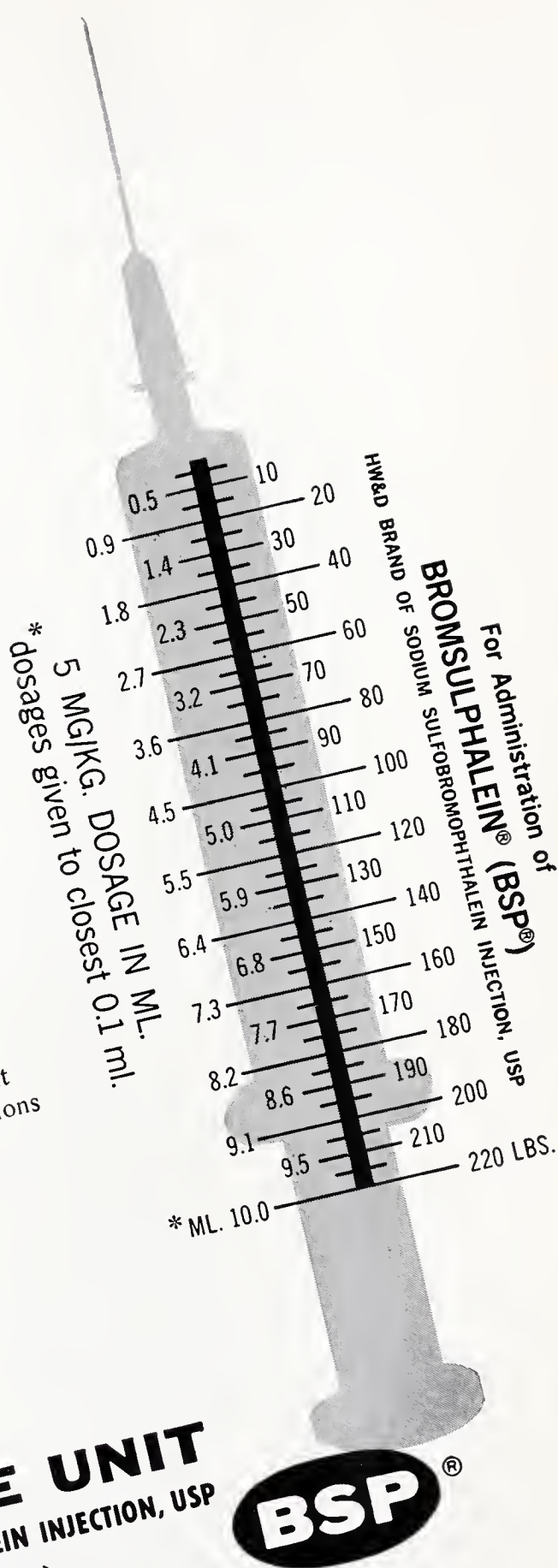
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only for those patients in reasonably good condition.

Margulis⁵ has advocated an arteriogram of the vessels leading into area of the bowel that bleeding is suspected and visualization of the blood entering the bowel. This procedure was not utilized in our series of patients. Specialized scanning procedures using radioisotopes may be utilized in the future.

Is a colostomy indicated? Review of the literature has revealed that in a number of cases performance of colostomy has caused the bleeding to cease. In other instances the bleeding has continued. This procedure was used in only one patient who was in extremis and the colostomy was performed for obstruction. The bleeding ceased, however, the patient died several days later from a perforation of the diverticulitis.

All of the patients in whom surgery was performed were in extremis. Several had refused surgery until they were poor candidates for surgery, necessitating 12-31 pints of blood. It is intended in the future to perform surgery earlier when the patient is in reasonably good condition which will lower the mortality to an acceptable level. Ross⁶ reported 4 cases of diverticular disease that necessitated surgery out of 19 cases of massive melena. Miangolarra⁷ reported 22 cases of massive melena, 8 of which necessitated surgery.

For the patient who has recovered from a near fatal hemorrhage from the lower bowel and there is localized area of diverticulosis it is our present policy to recommend resection of the involved bowel. The mortality from surgery would be less than the mortality from another episode of severe melena.

Conclusions

1. Diverticulosis is the most common cause of massive melena and occurred primarily in the aged with moderate atherosclerosis and hypertension.

2. A certain percentage of patients with massive melena from the lower GI tract do not stop bleeding after reasonable blood replacement and should be committed to surgery before their general physical condition deteriorates.

3. Patients with massive melena having no apparent cause with localized diverticulosis of the colon should have a resection of the involved colon if they do not respond to conservative therapy.

4. If the entire colon is involved with diverticulosis, resection of the entire intra-abdominal colon should be performed only in patients in reasonably good physical condition, otherwise the mortality will be prohibitive.

5. Patients in whom massive melena ceases and no apparent cause is found except the presence of a localized area of diverticulosis of the colon should have an elective resection of the involved colon.

Summary

Sixty cases of massive melena from the lower gastrointestinal tract are reported. Diverticular disease was the most common cause of the bleeding and certain conclusions are presented.

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Diagnosis and Treatment of Parathion Poisoning

Carl E. Northcutt, M.D.*

The organophosphorus insecticides are widely used in agriculture in Arkansas. The recent use of ethyl parathion in mosquito control programs has greatly increased the potential exposures to this insecticide. 75% of poisonings from agricultural chemicals are due to organophosphorus insecticides.¹ Parathion is one of this group. In its concentrated form it is one of the most potent and toxic insecticides used in this area.

The effects of the organophosphorus insecticides are due largely to their ability to inhibit cholinesterase.¹ Normally cholinesterase hydrolyzes acetylcholine. The cholinesterase inhibition results in excessive concentrations of acetylcholine.

Absorption can occur by the pulmonary, gastrointestinal, or dermal route. The route of exposure influences the symptomatology. Respiratory symptoms appear first following an inhalation exposure. Gastrointestinal symptoms are more prominent when parathion is ingested. Local skin signs and symptoms may appear before systemic manifestations when the chemical is absorbed through the skin. Symptoms may have an abrupt onset in the case of an ocular exposure, whereas they may be delayed for several hours following a cutaneous exposure.

Summary of signs and symptoms of parathion poisoning.⁴

Nausea	Fasculations of tongue and eyelids
Vomiting	Generalized weakness
Abdominal Cramps	Mental confusion
Diarrhea	Disorientation
Sialorrhea	Drowsiness
Headache	Dyspnea
Vertigo	Cyanosis
Weakness	Hypertension
Rhinorrhea	Incontinence
Blurring of vision	Convulsions
Miosis	Coma
Tearing	Death due to respiratory arrest
Loss of accommodation	
Poor muscle coordination	
Slurring of speech	

As in most diseases an adequate history and physical examination will usually permit you to make an accurate diagnosis. The better laboratories are equipped to do blood cholinesterase determinations. It is the practice in many areas for agriculture pilots to have a base line cholinester-

ase determination each year prior to exposure. This is an excellent practice since the range of normal is variable. There is available an "office kit" method for cholinesterase determination, but this method is not recommended. Acholest⁹ test paper is being tested now and will probably be available commercially in the near future. This test paper offers a simplified screening method for office and small hospital use. An accurate method for determining blood cholinesterase levels is important, not only diagnostically, but in monitoring the treatment.

Fortunately there are two drugs available for treatment.⁶ They are atropine and pralidoxime chloride (Protopam Chloride).⁸ Atropine inhibits the action of acetylcholine in the voluntary muscles. It has no effect on respiratory muscle paralysis. Atropine does not reactivate cholinesterase.³ Pralidoxime chloride is capable of reactivating the enzyme and relieves the weakness of the respiratory muscles. It is best to institute full atropinization before using protopam.⁷

Treatment Summary:

Coma-Cynosis-Convulsions (Severe cases).

1. Prevent self exposure.
2. Remove secretions and maintain patient airway.
3. Positive pressure artificial respiration.
4. Relieve convulsions with barbiturates.⁵
5. Administer atropine as soon as cyanosis subsides. Give 2-4 mgm. intravenously. Repeat this dose at 5-10 minute intervals until signs of atropinization appear.
6. Remove patient's clothing and wash contaminated skin with soap and water.
7. Gastric lavage if parathion was ingested.
8. Pralidoxime—give an initial dose (adult) of 1,000 mgm. slowly intravenously at a rate not to exceed 500 mgm. per minute. This may be repeated in one hour if muscle weakness has not been relieved. This dose can be doubled for an overwhelming exposure. Give children 25-50 mgm. per kg.
9. Contraindicated drugs: Do not give atropine until cyanosis has been relieved. Morphine, theophylline, succinyl choline, and epinephrine⁵ are contraindicated. Avoid reserpine

*Stuttgart Medical Clinic, Stuttgart, Arkansas.

and phenothiazine² type drugs.

10. Close medical supervision for 72 hours.

Less severe cases can be managed with the above protocol, but less vigorous treatment will suffice. The most common errors in treatment are giving too small an amount of atropine and not observing the patient close enough after the initial treatment is administered.

Summary:

Ethyl parathion and other insecticides of the organophosphorus group are widely used in Arkansas. They are potent and toxic. An outline for diagnosis and treatment has been presented. Close medical supervision and adequate doses of atropine and pralidoxime chloride are stressed.

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Observations on Blood Pressure in Newborn Babies

J. M. Gupta and J. W. Scopes (Hammersmith Hosp, London), *Arch Dis Child* 40:637 (Dec) 1965

Blood pressure in newborn babies was measured in two ways. By the first method (automatic indirect recording for periods up to 24 hours) the fluctuations during the day are examined. There is no circadian rhythm in newborn babies, but

there are striking variations associated with the imposed rhythm of feeding and the natural rhythms of sleep. By the second method, direct readings from an umbilical artery catheter were taken and analyzed according to size and clinical condition of the baby. The premature baby has a low blood pressure as has the "small for dates" baby. Hyaline membrane disease is associated with a further reduction of blood pressure. Even in sick and premature babies there are vasomotor responses to tilting.

Molecular Events Resulting in Radiation Injury, Repair and Sensitization of DNA*

Dr. Wacław Szybalski**

Little doubt remains that DNA is the principal target of lethal radiation effects in most cellular systems.¹⁻³ By the words "lethal effect" is meant reproductive death of the cell, i.e., inability of the cell to divide and to produce an unlimited number of progeny cells. However, at least one exception is obvious: RNA must be the critical structure in RNA viruses. We do not know what the principal targets are in the case of so-called death of non-reproducing cells. They may depend on the criteria used to determine the "death" of such cells. Radiation death of multicellular organisms will not be discussed.

Structural and Transcription Damage to DNA

The starting point of this discussion is the nature of the radiochemical damage in the critical structure (=principal target). At this time we should not concern ourselves with the chain of intermediary events leading to the final product of this radiochemical reaction with DNA as the substrate.^{2,4} We could ask what the chemical nature of the damage is and how this chemical injury inactivates the biological functionality of DNA. It should be possible to postulate two general classes of damage to DNA: (A) structural damage resulting in major distortion of the DNA structure and change in its topology, most often breakage of phospho-diester bonds with resulting single- or double-chain scission, or covalent linking of the complementary strands, binding to protein or other macromolecular cell components, and other changes affecting large regions of DNA, and (B) change in information, caused most often by radiochemical modification of individual DNA bases. If DNA and the information which it carries could be compared to a book, then structural damage (A) would correspond to tearing out the pages, whereas type (B) damage could be compared to alteration of words. The latter could lead to (a) inconsequen-

tial changes, (b) major missense or fraudulent information, and (c) complete nonsense. As recently shown, a nonsense triplet in translation of DNA-to-mRNA transcribed information results in premature termination of the peptide chain and thus absence of functional protein.⁵ In this respect, the "nonsense" type of radiation damage (type Bc) would result in a final transcription effect (lack of a complete and functional protein) similar to that produced by structural damage in DNA. To better define radiation damage type A and type B, we could assume that the former profoundly affects the replication of DNA and its gross fidelity, whereas the latter mainly alters the result of the transcription process. However, it should not be forgotten that faulty transcription may finally result in blockage of DNA synthesis either due to lack of enzymes instrumental in the synthesis of DNA or its substrates, or to the indirect effect of radiation on the controlling elements.

Which of these two classes of damage is more important as far as radiation lethality is concerned? To answer this question more meaningfully one should first ask whether any chemical modification of the critical structure (=DNA) leads to reproductive death of the cell. The answer to the latter question is an emphatic "no", and in this connection the significant phenomenon of the post-irradiation repair of DNA must be included. Let us begin by discussing the lethality of type B i.e., radiation damage to individual bases. As already mentioned, this damage finally leads to changes in the transcription into protein, which might not be lethal if (i) the given protein is not an important enzyme or (ii) the change is inconsequential because of the nature of the amino acid substitution or its location in a "silent" region of the enzyme. Other possibilities include a change in (iii) a non-translated strand of DNA or (iv) the ultimately nontranscribing region of DNA. Obviously, some profound radiochemical changes in the bases, including ring cleavage, might or might not interfere with the function of DNA polymerase.

*Investigations leading to this essay were supported by National Science Foundation Grant No. B-14976, by Public Health Service Research Grant No. CA-07175 from the National Cancer Institute, and by the Alexander and Margaret Stewart Trust Fund . . . Presented in the Biophysics Seminar at the University of Arkansas Medical Center, May 13, 1965.

**McArdle Laboratory, University of Wisconsin, Madison, Wisconsin 53706, U.S.A.

Repair of DNA

Before discussing the lethality of type A (structural) damages, post-irradiation repair of DNA should be taken into consideration. This repair, as understood at present,⁶⁻⁸ is a chain of enzymatic events which eliminate the nucleotide distortion in DNA, as shown in Figure 1. The first reaction would be triggered by some radiation-induced modification of a nucleotide, which results in local distortion of the double-stranded DNA conformation. Enzyme A recognizes this distortion and severs the adjoining phosphate-ester bond, thus producing free ends susceptible to exonucleolytic attack by an enzyme B analogous to exonuclease III, as described by Lehman,⁹ which attacks the DNA strand from the 3'P or 3'OH end, releasing 5' nucleotides. In this manner the chemically modified nucleotide, together with a few adjoining ones, would be excised. The genetic information, however, would remain in the complementary DNA strands and serve as a template for resynthesis of the excised DNA region by enzyme C, the properties of which should be similar to the DNA polymerase.¹⁰ To complete the repair, enzyme D, perhaps analogous to that described by Mead¹¹ must close the final 5'P to 3'OH link between the "new" and "old" nucleotides.

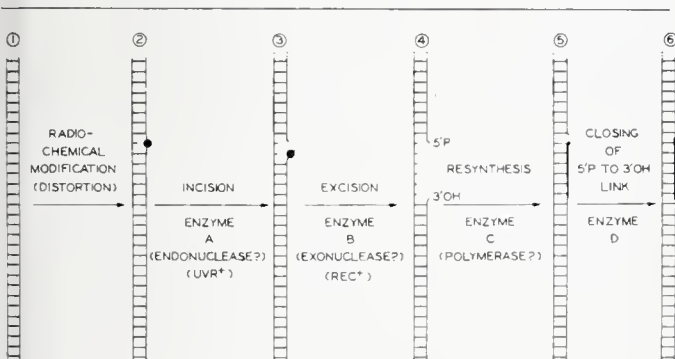


Figure 1.

Diagrammatic representation of the post-irradiation repair process of DNA on the molecular level:

1. Intact double-stranded native DNA molecule.
2. One nucleotide chemically modified (black circle) with resulting local distortion of hydrogen bonding (horizontal lines).
3. Opening of phosphate ester bond by hypothetical "incision" enzyme A.
4. Exonucleolytic excision of 5' nucleotides starting with the chemically modified one (released nucleotides not depicted) by exonuclease (enzyme B). Only the 3'P (or 3'OH) terminated strand is attacked.
5. Polymerase-mediated DNA synthesis commencing at 3'OH ends (enzyme C). Newly synthesized strand is indicated by thicker line.
6. Closing of final 3'OH-5'P link by enzyme D. Reestablishment of original double-stranded DNA structure.

There are several lines of evidence for the excision mechanism in UV-irradiated or alkylating agent-treated cells or phages.^{6,7} The distinction between enzymes A and B is mainly based on the fact that post-UV excisions are blocked in the so-called *uvr⁻*, radiation-sensitive, repair-impaired mutants (7), most probably lacking enzyme A, whereas in the same mutants the excision process proceeds normally after X-irradiation,⁵ which results in many single-strand breaks apparently mimicking the action of enzyme A. Enzyme A is most probably very similar to the enzyme isolated from *Micrococcus lysodeicticus* cells and found to be inactive toward native DNA, while introducing single-strand breaks in UV irradiated DNA, rendering the latter susceptible to repair in *uvr⁻* host cells (Rörsch, personal comm.). Mutational modifications of enzyme B result in several types of *rec⁻* (recombination-less) mutants characterized by enhanced X-ray and UV sensitivity and impaired capacity for genetic recombination.^{12,13} One class of these mutants exhibits greatly exaggerated post-irradiation breakdown of DNA ("reckless" mutants), indicating partial loss of specificity and/or controllability of enzyme B, whereas DNA degradation in another extreme class of *rec⁻* mutants ("cautious" mutants) is actually lower than in the wild type strain (Howard-Flanders, personal comm.). There are no clear indications that *rec⁻* mutations affect enzymes C or D. The steps mediated by enzymes C and D seem to be closely related to analogous steps in the process of genetic recombination, as discussed a few years ago by the author.¹⁴ Corroborating evidence for the resynthesis mediated by enzyme C is found in the studies of Pettijohn and Hanawalt,¹⁵ showing multifocal limited "synthesis" of DNA following UV damage.

Several questions come to mind in the discussion of repair mechanisms. (a) How important is this type of radiation repair; (b) is all damage repairable; (c) are there any other types of repair; and (d) how can the repair process be inhibited or stimulated?

(a) Comparison of the survival of phages in repair-apt and repair-impaired hosts indicates that 80 to 90% of usual radiation damage is repairable. Similar figures could be deduced from the survival data for the single-stranded (irreparable) and double-stranded (repairable) Φ X 174 phage DNA in the *uvr⁺* and *uvr⁻* hosts.^{16,17} (b) Some profound structural damage, including

double-strand breaks, may not be repairable, especially when information in both strands is erased. It might also be difficult to repair some of the cross links between the complementary DNA strands or any drastic nucleotide damage, which would interfere with action of any of the "repair enzymes". Moreover, extensive radiation damage would lead to overlapping excisions on the complementary strands, resulting in double-strand scissions and general breakdown of the DNA.

(c) Repair mechanisms based on somewhat different principles than the ones discussed above are known and include *photoreactivation*, which specifically leads to splitting (not excision) of thymine dimers,^{18,19} and *multiplicity reactivation*, where radiation damage is eliminated by a recombination process, according to the scheme discussed by Szybalski.¹⁴

(d) In addition to use of repair-impaired mutants, post-irradiation repair could be blocked phenotypically by DNA-complexing compounds, e.g., proflavine or caffeine, or by exposure to elevated temperatures.

Lethal and Nonlethal DNA Damage

With this discussion about post-irradiation repairs in mind, we could ask again which type of radiation damage might not be lethal. As far as type B (nucleotide modification) damage is concerned in appropriate cells up to some radiation level all repairable changes, in addition to the cases already discussed, would not be lethal. In type A damage (structural), single-strand breaks could be eliminated by enzyme D ("clean" 3'OH-5'P break) or enzymes B, C, D ("dirty" break) (Figure 1), whereas repair of double-strand damage or breaks would require a genetic recombination process analogous to multiplicity reactivation, using two or more genomes within one cell. Links between the complementary DNA strands^{14,20,21} or between DNA nucleotides and surrounding protein²² might often be analogous to simple base modification from the point of view of the repair system, and are corrected by the excision-resynthesis process (Fig. 1).

One could summarize the introductory part of this discussion by saying that DNA appears to be the principal target of radiochemical effects, the final outcome of which (lethality) depends greatly on the type of damage, as far as its location, transcribability and repairability are concerned, and on proper functioning of the complex repair machinery.

Radiosensitization by Pyrimidine Analogs

The other main subject of this review is the mechanism of action of radiosensitizers on the molecular level, for which a general background has been presented in the introductory section. The sensitizers referred to here, mainly the halogenated analogs of thymidine and deoxyuridine (Fig. 2) increase the radiosensitivity of cells, viruses, and isolated DNA by virtue of their incorporation into DNA in place of either deoxyuridine (in *B. subtilis* phage PBS2 (24)) or thymidine (in most other organisms.^{1,3,25,26}) The quantita-

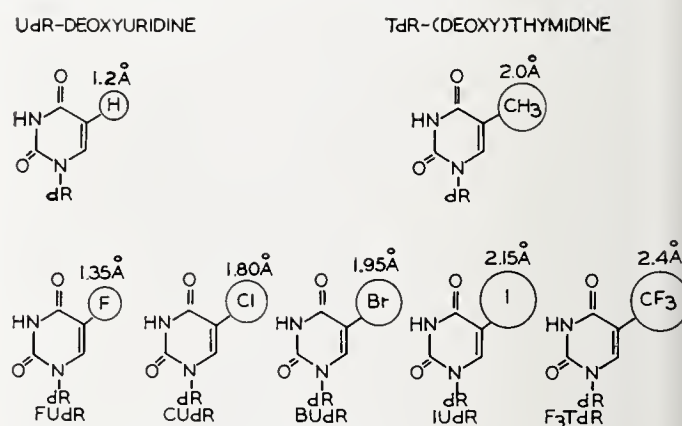


Figure 2.

Chemical structure of natural deoxynucleosides, deoxyuridine (UdR) and thymidine (TdR), and of their halogenated analogs: 5-fluorodeoxyuridine (FdR), 5-chlorodeoxyuridine (CdR), 5-bromodeoxyuridine (BdR), 5-iododeoxyuridine (IdR), and 5-trifluoromethyldeoxyuridine (trivial name: trifluorothymidine, F₃TdR). The circles in position 5 represent the comparative sizes of the substituting group, the van der Waals radii of which are indicated above each circle. Because of the similarity of the van der Waals radii, FdR behaves as an analog of deoxyuridine, whereas CdR, BdR, IdR and to some extent F₃TdR are analogs of thymidine.

tive resemblance of intact *B. subtilis* cells and extracted transforming DNA in the degree of 5-bromodeoxyuridine (BdR) or 5-iododeoxyuridine (IdR) sensitization was considered as good evidence that DNA is the principal target of lethal radiation effects.^{1,3}

How do DNA-incorporated halogenated pyrimidine analogues sensitize the cells and the DNA? Do they (a) magnify the radiochemical damage to DNA, or do they (b) interfere with post-irradiation repair?

(a) Using a very sensitive technique which permits measuring quantitatively single-strand DNA scissions at low radiation doses (Fig. 3), Mr. W. C. Summers of this laboratory has found that neither a change in the gross base composition of DNA nor incorporation of BdR has any significant effect on X-ray induced breakage of phosphate

ester bonds.²⁷ On the other hand, BUdR-labeled DNA is more susceptible to UV-induced cross linking than control DNA.²⁸ Similarly, free and DNA-incorporated halogenated thymidine analogs seem to be more sensitive to photo- and radiochemical damage than thymidine.²⁹⁻³⁴ The products of radiochemical damage are several, depending on the conditions of irradiation. Deoxyuri-

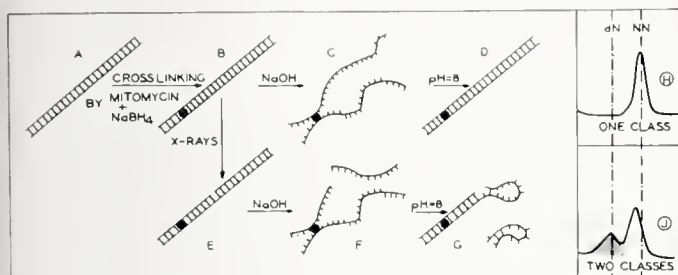


Figure 3.

Diagrammatic representation of the principle for the method of quantitative determination of single-strand breaks in DNA molecules at low doses of X-rays, according to Summers and Szybalski (27). Native DNA molecules (A) of uniform length and free of single-strand breaks are cross-linked by *in vitro* exposure to mitomycin C and a reducing agent, with an average of one crosslink (●) per DNA molecule (B). These molecules (B) are irradiated with various X-ray doses (B → E) and subsequently compared as to their behaviour during denaturation and rapid cooling. Control molecules (B) denature during brief exposure to 0.1 N NaOH (C) but upon neutralization regain a native-like structure (D). They form only a single band (H), sedimenting close to the native buoyant density (NN) in the CsCl equilibrium density gradient. As a result of single-strand breaks the X-irradiated molecule (E) loses its distal end during the denaturation process (E → F) and only the cross-link-containing part renatures during the pH quenching process (F → G). The product (G) forms two bands during subsequent CsCl density gradient centrifugation (J). The denser band (shaded) corresponds to broken off, denatured, single-stranded DNA fragments banding at the position of denatured DNA (dN) and representing the measure of X-ray induced single-strand breaks. The details of this method will be published elsewhere.

dine is the principal product of radiochemical dehalogenation, especially under highly anaerobic conditions in the presence of radical scavengers.^{29, 30, 33, 34} It is quite probable that conversion of 5-halodeoxyuridine or deoxyuridine is in many cases not a lethal event,³³⁻³⁶ when not accompanied by secondary reactions, which include oxidative cleavage or rearrangement of the pyrimidine ring.³⁴

(b) Incorporation of 5-halodeoxyuridine affects profoundly the post-irradiation repair of DNA. In repair-impaired mutants, deficient in enzyme A (*E. coli* B_s; K-12 *uvr*⁻), the radiosensitizing effect of BUdR or IUdR is greatly dimin-

ished.^{7, 33, 34, 37} Does this mean that halogenated DNA is (i) a poor substrate for the repair enzyme, or (ii) that the damage sustained by the halogenated pyrimidines is irreparable? The latter seems to be a more plausible explanation, since the repair enzymes A and B cannot be expected to be very specific in dealing with a whole variety of distortions in the DNA structure, and since BUdR-labeled DNA irradiated under conditions (10⁻²M cysteamine) excluding major oxidative damage to BUdR is repaired as well as normal irradiated DNA.³³⁻³⁶ Moreover, the photoreactivation-mediating enzyme seems to have good affinity for BUdR-labeled, UV-irradiated DNA, although this affinity is not diminished by enzymatic *in vitro* photoreactivation, as determined by competition-type experiments.¹⁹

All these data indicate that radiosensitization by DNA-incorporated halogenated pyrimidine analogs is based on two of their properties. Under most physiological conditions halogenated analogs (1) are somewhat more sensitive to radiochemical damage than natural pyrimidines, and (2) give rise to irreparable (non-excisable?) products. However, one could predict conditions under which the sensitization by halogenated analogs would be eliminated.

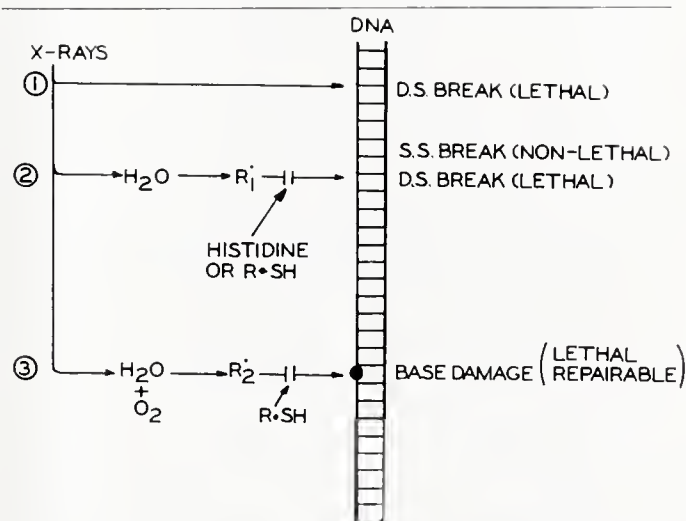


Figure 4.

Diagrammatic representation of the three types of X-ray damage to DNA molecules suspended in an aqueous environment. (1) Direct damage, probably a relatively rare event in oxygenated media, which results in double- or single-strand breaks. (2) Indirect damage mediated by R_1 radicals, which cause double- or single-strand breaks, and which are quenched by radical scavengers, e.g., histidine or SH-containing compounds. (3) Indirect damage mediated by another class of R_2 radicals, the formation or action of which depends on the presence of oxygen and leads to chemical damage to the pyrimidine bases. This damage is depressed by the absence of oxygen, or by the addition of SH-containing compounds but not by radical scavengers of the histidine class.

(1) Under conditions where single- or double-strand DNA breakage (and/or damage to tail proteins) is the main cause of lethality, the potentiation of base damage by halogenated analogs should have little effect on radiosensitivity. This is actually the case when DNA or free phages are suspended in aqueous buffer during the irradiation; control and BUdR-labeled DNA show the same radiosensitivity,^{37a,39} since BUdR has no effect on DNA strand breakage by X-ray.^{27,39} However, addition of histidine to the buffer,⁴ which preferentially decreases reaction 2 (Fig. 4) leading to chain breakage, results in two to three times higher resistance for the control than for the BUdR-labeled phages.³⁹ Whereas in buffer all of the lethal events could be assigned to double-strand DNA scissions, this reaction is responsible for only 40% of the lethal events in the presence of histidine (or nutrient broth), the remaining lethality resulting from radio-oxidative damage to the bases^{38,39} (reaction 3—Fig. 4).

(2) Under strictly anoxic conditions and in the presence of sulfhydryl compounds, when X-ray damage to the bases is highly depressed and strand breakage less affected, halogen analog sensitization should be greatly diminished. This phenomenon was originally observed by Hotz^{35,36} and later confirmed in other laboratories,^{33,34,39} including this one. This observation could be interpreted as follows: The presence of sulfhydryl-type radical scavengers and the absence of oxygen depress strongly reactions 2 and 3 (Fig. 4), with reaction 1 and the resulting chain breakage predominating. Under these conditions no sensitization occurs, since the halogenated analogs do not affect chain breakage.²⁷

Summary and DNA Inactivation Model

Let us now summarize by proposing a model which would permit unifying all the data pertaining to the lethal effects of X-rays on DNA, phages, and cellular organisms. Figure 4 is to be considered as a diagrammatic presentation of this model.

- (A) DNA as a whole is the principal target of lethal radiation effects.^{1,3}
- (B) Two distinct "targets" can be experimentally detected in the DNA molecule: (a) The phosphate ester bond, and (b) the pyrimidine nucleotides.
- (C) Three different radiation mechanisms can be distinguished (Fig. 4):
(Reaction 1) Direct hits resulting principally

in fission of phosphate ester bonds (DNA strand breakage).

(Reaction 2) An indirect reaction *independent* of the presence of oxygen and proceeding through radicals $R\cdot_1$. This reaction also results in DNA strand breakage.

(Reaction 3) An indirect, *oxygen-dependent* reaction proceeding through radicals $R\cdot_2$ and resulting in chemical modification of nucleotides, predominantly the pyrimidines (thymidine, cytosine).^{4,30,31}

- (D) The relative lethalities of reactions 1, 2 and 3 (Fig. 4) depend greatly on the conditions of irradiation:
 - (a) In fully unprotected aqueous media (distilled water, buffer), a situation which could be realized only with extracted DNA and free phages, reaction 2 plays the most decisive role. Practically all the lethal events could be accounted for by double-strand (phage)^{38,39} or single-strand (transforming DNA) DNA breaks, the latter as inferred from the effects of DNase.^{*41} Damage to tail fiber protein could be experimentally assessed, since it prevents irreversible adsorption of the phages.⁴²
 - (b) Addition of a radical scavenger of the histidine type suppresses only reaction 2. Thus, in well oxygenated, histidine-supplemented buffer or in nutrient broth, the oxygen-mediated reaction 3 accounts for up to 60% of the lethal events, whereas DNA strand breakage contributes to the remaining 40% of the lethality.^{38,39} It is not clear whether production of the reactive species $R\cdot_2$ depends on the presence of oxygen, or whether oxygen reacts with the pyrimidine converted into the active state, which event results in irreversible radiochemical damage.²
 - (c) Under anoxic conditions and in the presence of radical scavengers both reactions 2 and 3 are suppressed, with reaction 1 playing the principal role.

Under these conditions chain breakage accounts for most of the lethal events.

(E) The conditions described under D(b) represent the most common environment for intracellular DNA in well oxygenated cells. In anoxic cells, the environment of intracellular DNA shifts gradually to condition D(c).

(F) Only reaction 3 contributes to the radiosensi-

*A single-strand break does not seem to be lethal to the infectivity of the replicative double-stranded DNA of $\Phi\text{X } 174$ phage.⁴⁰

tization phenomenon. This reaction results in largely repairable radiochemical damage to normal nucleotides and in irreparable damage to the halogenated analogs. Thus radiosensitization by BUdR-like compounds (Fig. 2) is most prominent under conditions D(b) in cells endowed with repair mechanisms, of the type outlined in Fig. 1. While admittedly over-simplified, the foregoing model should permit a better understanding of radiation effects in biological systems, and of the mechanism and the conditions of radiosensitizing effects of DNA-incorporated halogenated pyrimidine analogs, and should facilitate the design of future experiments. The actual radiochemical events in X-irradiated DNA were recently reviewed by Weiss,⁴ but it is difficult to assign the lethal event to any specific nucleotide modification, since irradiation was not carried out under condition D(b), where base damage seems to be responsible for the majority of the lethal events, and since the X-ray doses used were several orders of magnitude higher than that responsible for the lethal effects. Also the basic chemistry of DNA chain breakage by low X-ray doses hitherto has not been critically evaluated as far as its radiobiological significance is concerned.⁴ Thus, the rigorous assignment of chemical structures to the R_1 and R_2 radicals and the chemistry of the lethal events must await further study.

Acknowledgments

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Arteriographic Manifestations of Pancreatic Neoplasm

T. F. Meaney and E. Buonocare (Cleveland Clinic Foundation, Cleveland) *Amer J Roentgen* 95:720-726 (Nov) 1965

The value of celiac angiography for determining the presence of pancreatic neoplasm has been demonstrated. In 140 patients, celiac and su-

perior mesenteric angiograms were made to evaluate obscure abdominal pain. In 10% (14 patients) angiographic evidence for pancreatic neoplasm was found. The angiographic demonstration of arterial encasement, hypervascularity, and tumor staining identified the site and presence of the tumor, indicated prognosis, and anticipated histologic findings.

Annual Report

ARKANSAS STATE BOARD OF HEALTH

An important event of the past year was the authorization of the construction of a new building for the Arkansas State Department of Health. This building will be on the southeast corner of Markham and Monroe streets on the State Hospital Grounds. It will be six stories high and will face War Memorial Stadium. Construction is expected to begin in April of 1966 and be completed in late 1967. This will bring all of the Bureaus and Divisions of the Department back together in the same building and allow for the rapid expansion of some programs expected to result from recent Federal legislation.

In the Bureau of Vital Statistics a total of 41,893 current live births were recorded during the Calendar Year 1964, representing a rate of 23.5 per 1,000 population. A total of 19,179 deaths were recorded, representing a rate of 10.7 per 1,000 population. Also, a total of 834 fetal deaths were recorded, representing a rate of 19.9 per 1,000 live births.

The ten leading causes of death for the year 1964 were as follows:

Cause of death	Total	Percent	
		of Total	Rate per 100,000 pop.
1. Heart Disease (all forms)	6,534	33.02	365.79
2. Cancer (malignant)	2,819	14.70	157.81
3. Vascular lesions affecting central nervous system	2,577	13.44	144.27
4. Accidents (all forms)	1,672	8.72	93.60
5. Influenza and pneumonia	658	3.43	36.84
6. Diseases of digestive system	588	3.07	32.92
7. Diseases of early infancy	580	3.02	32.47
8. Diabetes mellitus	294	1.53	16.43
9. Nephritis and nephrosis	183	.95	10.24
10. Congenital malformations	166	.87	9.29

These ten causes of death, a total of 16,071 deaths, representing 83.8 percent of all deaths recorded during the year 1964, and a rate of 899.7 per 100,000 population. It might also be noted that of the 6,534 deaths from all forms of heart disease, 76.15 percent, or a total of 4,976, of these deaths were from arteriosclerosis alone.

The Division of Communicable Disease Control is grateful to the private physicians of Arkansas for their assistance in prompt reporting, as well as their invaluable cooperation in surveillance programs, some of them Nationwide, on brucellosis, diphtheria, hepatitis, malaria, poliomyelitis and allied diseases, Rocky Mountain spot-

ted fever, salmonellosis, shigellosis, tetanus, and tularemia.

Blastomycosis reporting was more than doubled (twenty-eight cases in 1964-65 as compared to thirteen cases in 1963-64). This disease is also prevalent in dogs as reported to the Division of Veterinary Public Health, with which this Division works very closely. No human rabies cases have been recorded in Arkansas since 1956.

Although the Calendar Year 1964 had no poliomyelitis reported, there has been one case of paralytic poliomyelitis in the Fiscal Year 1964-65.

Typhoid fever cases increased from twenty-two in 1963-64 to twenty-five for 1964-65. Eleven new typhoid carriers were identified, bringing the total registered to two hundred and nine.

Two hundred and thirty-seven yellow fever vaccinations were given during 1964-65 to Arkansans preparing for international travel. These immunizations are given every Monday morning at 10:00 except holidays.

The Vaccination Assistance Program, which was begun in January 1, 1964, continues to assist communities in conducting intensive vaccination programs to protect their populations against poliomyelitis, diphtheria, whooping cough, and tetanus. This program is designed to eradicate the backlog of older children and adults who are not adequately immunized.

The Division of Tuberculosis Control has continued to provide local medical services to outpatients through chest clinics staffed by qualified consultants. These physicians are also available for consultation with private physicians who are providing care of tuberculosis patients. The local clinics are established at the request of local Medical Societies and staffed by specialists practicing in the area. During the year January 1, 1964, to December 31, 1964, 467 chest clinics were held with an attendance of 4,809. Fifty-one of the seventy-five counties have chest clinics.

Tuberculosis case-finding has been intensified by the increased use of tuberculin skin testing and providing x-rays on the mobile x-ray units. Examination by skin test is offered to all persons who are contacts to newly diagnosed cases, all persons suspected of having tuberculosis, all school teachers, food handlers, and any citizen

desiring tuberculosis examinations. During the year three mobile x-ray units have been in operation, and a total of 57,747 x-rays were taken. The x-ray department also provided x-ray duplication facilities to improve patient care in clinics. 943 duplications of x-rays were made for clinic purposes.

The Division of Tuberculosis Control has provided anti-tuberculous medication for any out-patients under treatment.

A summarization of venereal disease epidemiologic activities for the fiscal year of 1964-65 is listed below:

Primary and secondary syphilis brought to treatment	245
Early latent syphilis brought to treatment.....	76
Other syphilis brought to treatment	769
Gonorrhea brought to treatment	6,490
Other venereal diseases brought to treatment	16
Number of visits to private physicians	2,596
Number of visits to laboratories	257

The Division of Veterinary Public Health provided all possible assistance to physicians, veterinarians, local health agencies, and individual citizens on problems pertaining to the diseases of animals transmissible to man.

The Division of Maternal and Child Health operates the Arkansas Children's Hearing and Speech Center, a center for the evaluation and treatment of speech and audiology handicaps, and the Arkansas Child Development Center, a special project for evaluation of mentally-retarded children. It administers a Special Project for Maternity and Infant Care in the University of Arkansas School of Medicine and a special Premature Infant Care Project in Jefferson County.

Maternity clinics were conducted by local physicians assisted by public health nurses in nineteen counties as part of the local health program for prenatal and postnatal care of maternity patients, especially those expecting to use midwives. Through arrangements with the Special Obstetric Project, five of the conferences were used as a means of familiarizing students of the University of Arkansas Medical Center with the public health aspects of maternity care.

In 1964, 655 premature infants were served by public health nurses, with incubators loaned to 67 families. Approximately 8 percent of the infants born alive in the State last year were born prematurely.

Well-child medical supervision was provided for 3,949 children at well-child conferences in

twenty-five counties. Approximately one-half of the children examined in the conferences were under one year of age; 84 percent were under 5. In addition to medical well-child conferences, child health supervision is provided by nurses in nursing conferences, immunization clinics, and on home visits. Public health nurses are furnished 10 percent ferric chloride and instructions on the use of this material for testing urine for phenylketonuria. A special dietary powder, Lofenalac, was furnished to 3 children with positive phenylketonuria. A program of acquainting the private physicians with the program of screening for phenylketonuria is in progress. Two of the hospitals in Pulaski County are now screening all newborn by the Guthrie test. Specialized equipment for confirmation of positive PKU screening tests have been put into operation at the University Medical School.

Schools in every county in the State have conducted hearing or vision testing screening programs at some time since the program was initiated in 1948.

In conjunction with the University of Arkansas Medical School, a project was started in June 1965, to improve maternal and infant care in Central Arkansas. Prematurity, handicaps, and mental retardation will be prevented by improved obstetric and infant care. 238 patients have benefited by our program in the 10-county area surrounding Pulaski County. The mother is counseled in nutrition, health needs, and availability of local services by the Maternity and Infant Care Project personnel during her prenatal course. A comprehensive medical care program in preventive health services is carried out on each mother and infant. Hospital care is provided at the University Arkansas Medical School. Post-partum follow-up care is provided.

In November 1964, family planning clinics were added to our maternity clinics as well as initiated as the only clinic in certain counties without maternity clinics. At the present time we have 28 clinics in 31 counties. Two of these clinics are designated as regional family planning clinics and serve more than one county. A request form must be signed by both husband and wife to participate in this program. 690 patients have utilized the service of these clinics. Referrals are made to the Arkansas Medical School Research Clinic. All forms of contraception are utilized in our clinics, and parents are counseled in their

program of planning the family.

The Nutrition Staff has continued to give consultation to professional workers in the State Department of Health and related agencies. The Arkansas Diet Manual and individual diets for patients continue to be made available to physicians and hospitals in this State.

This has been a year of increased activity with the Chronic Disease Control Division. Requests for home nursing care services have been coming in from the Medical Societies in various counties much faster than we can possibly find personnel to fill positions. At present thirty counties have the program in operation, and seven other counties have requested it. Approximately one-third of the population of the State is covered by this Service.

Activities of the Division of Radiological Health centered around training and routine operations during the year. A training program for physicians in medical x-ray protection was held in each of the ten medical districts. Attendance was approximately 250 physicians.

The program for the low level detection of radioisotopes in our environment was initiated this year with the purchase and installation of radioisotope counting equipment. Ten sampling stations have been established, and monthly samples are analyzed for various radioisotopes now present in our environment.

A new maintenance and calibration laboratory is responsible for calibration and repair of all radiological defense instruments in the State.

The Medical Self-Help Program has been made more attractive and interesting with the development of 16 mm. films, in color and sound, to supplement each lesson of the course. With the release of these films, the demand for this program has increased greatly, especially in the schools. Arkansas enjoys a place in the top ten among the fifty states for bringing Medical Self-Help to its citizens. Since the program started in December 1961, over 37,020 individuals have completed this valuable training.

At the present time we have nineteen Packaged Disaster Hospitals prepositioned in the State, with another approved for shipment to Pine Bluff.

During the 1964-65 Fiscal Year the Division of Hospitals and Nursing Homes licensed 135 hospitals and infirmaries and 170 nursing homes. The routine inspection program for these facili-

ties under the licensure program showed continued improvement in the level of patient care and the degree of compliance with the requirements, of the regulations in regard to the physical plant. This improvement has been particularly noted in the nursing homes in the State.

In addition to administering the Hill-Burton program in Arkansas, the Division of Hospitals and Nursing Homes administers the Community Mental Health Centers Program and Mental Retardation Facilities Program in Arkansas under the supervision of the State Health Officer.

The Mental Hygiene Division continued with the second year in the Comprehensive Mental Health Planning Project and began the first year of the Comprehensive Mental Retardation Planning Project.

During the fiscal year, the Division of Mental Hygiene published, under the mental health planning grants, two large and comprehensive documents titled, "Mental Health Facts — Arkansas" and "The Changing Face of Arkansas." Both documents have been in heavy demand, including a number of requests from out-of-State planning organizations.

The Bureau of Sanitary Engineering reports that in 1965, 985,000, or approximately 52 percent of the population of Arkansas were on public water supplies and 880,000, or approximately 46 percent, were on public sewer systems. An analysis was made and a report completed on the sodium content of the public water supplies. This information is important for patients who must watch their intake of sodium. This report is available on request.

The fluoridation of water supplies of State communities was increased, and the sixty-seven communities now fluoridating their water supplies have reached over half of the available population of the State.

The programs for dental services to indigent children involved the services of twenty-three private practitioners, and services are given in four of the local community health departments.

The Bureau of Laboratories provides a variety of laboratory services to the physicians, laboratories, hospitals of the State, as well as the Bureaus and Divisions of the State Health Department. These services are provided in all areas of microbiology and other related areas.

The mycology program will expand tremen-

dously with the establishment of our Mycology Laboratory. This will enable us to provide additional isolation and identification services not now available in Arkansas.

During the fiscal year, 324,478 tests were made on 206,298 specimens submitted to the laboratories. This is an increase of 43,897 specimens and 97,402 additional tests over the preceding fiscal year (1963-64).

The public health nurses working in cooperation with local clinicians assist with maternity and well-child clinics held in many areas throughout the State. These clinics assist the local physicians in helping to save the lives of expectant mothers and their infants who are unable to obtain the services of a physician. They provide care and guidance for the expectant mother who is to be

delivered by a midwife. Supervision of the midwives, who deliver over two-thirds of these patients, included 353 classes held and 715 field visits.

Intensive care and supervision of the premature infant in the home, the supervision of the handicapped child, the care of the acutely or chronically ill child, are examples of some of the regular services provided by the public health nurse. These services are provided with the approval and cooperation of the local family physician.

The Division of Accident Prevention reports that accidents continue to be the leading cause of deaths of Arkansas's young people (age 1 through 34 years), and each year take the lives of more persons between the ages of 5 and 29 years than all diseases and illnesses combined.



The Defibrination Syndrome

F. Rosner (4802 Tenth Ave, Brooklyn, NY) and N. D. Ritz, *Arch Intern Med* 117:17 (Jan) 1966

Acquired hypofibrinogenemia occurs frequently in association with a variety of clinical disorders. It is only a complication of some underlying disease process which should be diagnosed and treated. Of eight patients with this hemorrhagic condition who were encountered in a two-year period, only two survived. In none of the five autopsied cases could intravascular thrombi be demonstrated at postmortem examination—not an uncommon finding. The basic mechanism for defibrination seems to be intravascular coagulation with the rapid consumption of fibrinogen or increased fibrinolytic activity of the plasma. Intravascular clotting causes multiple coagulation deficiencies and not merely lowered fibrinogen levels or increased fibrinolytic activity. Therapy for the former consists of the administration of

fibrinogen and fresh plasma, whereas the latter should be treated with epsilon amino caproic acid or comparable antifibrinolytic drugs.

Biochemical Studies of Energy Metabolism In the Failing Heart

C. A. Chidsey et al *J Clin Invest* 45:40 (Jan) 1966

The possibility of a bioenergetic defect in the failing human myocardium was examined in tissue removed from patients with valvular heart disease at the time of cardiac operations. Mitochondria isolated from these tissues were found to be normal in regard to coupling between electron transport and phosphorylation, adenosine triphosphatase activity, and ultrastructure. Biopsies of the myocardium in these patients revealed normal stores of high energy phosphate. The conclusion is that there is no evidence of defective energy metabolism in the failing heart.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF

OBSTETRICS AND GYNECOLOGY

WILLIS E. BROWN, M.D., *Professor and Chairman*
STEWART FISH, M.D., *Editor*

APPENDICITIS IN PREGNANCY

by

Charles E. Fougrousse, M.D.*

While the diagnosis of appendicitis is often difficult, an even greater challenge in diagnosis may arise in the pregnant patient. Although appendicitis is the most frequent extrauterine surgical complication of pregnancy its incidence is less than 0.1% of delivered patients.¹ The disease is found in the first two trimesters of pregnancy more frequently than in the third trimester² and inevitably obstetricians with wide experience will be confronted with patients whose pregnancies are complicated by this surgical disease.

With this thought in mind, a review of all cases of appendicitis associated with pregnancy diagnosed at the University of Arkansas Medical Center from 1950 to 1965 was undertaken.

Historical Background

A review of the medical literature reveals the first description of what we now know as appendicitis was written by John of Arderne, who called the disease "passioniliaca". John was an English Army Surgeon in the Hundred Years War of 1375 and of such renown that his surgical opinions were read with enthusiasm for over 200 years.³

It was not until 1711, however, when Lorenze Heister³ made the first post mortem section of the appendix at autopsy, that real evidence was obtained that the vermiform appendix could be a site of infection. Even with this information the term "perityphlitis" or inflammation around the appendix caeci was used.

Twenty-four years later Claudius Amyand,⁴ Esq., Serjeant Surgeon of His Majesty and F.R.S., was called upon to cure a "hernia scrotolis" in an eleven year old boy. He found a fistula had developed between the scrotum and thigh from which great quantities of pus had been discharging for over a month. He felt it evident that the hernial cure would depend upon the cure of the fistula and agreed to operate. He stated, "This operation proved the most complicated and perplexing I have met with, many unsuspected oddities and events occurring to make it as intricate as it proved laborious and difficult. This tumor, principally composed of the omentum was about the bigness of a small pippin. In it was found the appendix caeci perforated by a pin incrusted with stone toward the head, the point of which perforated the gut, gave way to the discharge of feces through the fistulous opening therein, as the portion of the pin obturating the aperture in it shifted its situation." Having made the diagnosis of gangrenous appendix caeci, Amyand placed a ligature around the base of the appendix and let it protrude through the wound. Eight days later the appendix fell off. The boy recovered and was discharged as cured. Amyand was apprehensive that a new anus or colostomy, as we know it today, would be formed in the incision but this did not occur.

The earliest published report of appendicitis complicating pregnancy was authored by Mr. Hancock⁵ and appeared in 1848 in the London Medical Gazette, later called The Lancet. The pa-

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tient was estimated to be 34 weeks pregnant and after four days of increasing right sided pain, she suddenly began labor and delivered a premature infant that expired 20 hours later. Her condition subsequently worsened and Hancock elected to make an incision above Poupart's ligament into the iliac fossa. This released a great quantity of turbid serum with fibrinous flocculi which continued to drain for many days. The wound did not heal, became inflamed and was painful for two weeks until two fecal concretions escaped after which she improved and recovered completely. A previous case described by Stumpf⁶ in 1836 as one of a rupture of the caecum in a pregnant woman was probably a case of perforative appendicitis, but the author did not make the diagnosis as did Hancock.

Abrahams,⁷ reported in 1897 fifteen cases of appendicitis complicating pregnancy. Although all cases were not operated upon, they were later proven at autopsy and all had perforated appendices. From this study he proposed that:

1. Operation should be done in the first hours of perforative appendicitis.
2. The pulse should be used as a guide particularly if out of proportion to the temperature.
3. In cases of doubt, the operation is better than waiting.

Kelly,⁸ in 1902, emphasized that the most dangerous complication with appendiceal abscess or periappendiceal abscesses in parturient women is met when the uterus forms part of the wall of the abscess. With the expulsion of the fetus and sudden contraction of the uterus, rupture of the abscess, according to Konig, is almost inevitable.

Muret,⁶ in 1850, described a patient of about six months gestation in whom appendicitis developed but soon subsided with disappearance of all symptoms. A term pregnancy was delivered but two days later the patient died of perforative appendicitis confirmed at autopsy.

Until 1900⁶ the primary therapy offered to patients with diagnosed appendicitis, except for a few isolated cases, was drainage of the abscess through the abdominal wall. When the diagnosis was made before perforation of the appendix had occurred and surgical intervention was elected, a number of techniques were employed depending upon the surgeon's preference. Some of these operations were described as follows:

1. Ligation, excision and sterilization of the stump.

2. Ligation, excision and sterilization with depression of the stump.
3. Inversion of the stump.
4. Inversion of the entire unopened appendix.
5. Amputation flush with the caecum.
6. Amputation by means of cautery.

Differential Diagnosis and Symptomatology

In 1932⁸ Baer, et al. reported their observation on displacement of the caecum and appendix in twenty-eight gravid patients. His illustration of the displacement of the appendix at various periods of gestation has become a standard for text books. He concluded, "during normal pregnancy there is a gradual shift in the position of the base of the appendix from its normal downward and inward direction, first to the vertical, often curving around the uterine fundus." These changes in position may mask the physical findings when the appendix is the site of infection in the gravid state particularly after the fourth month of gestation.

In the differential diagnosis confusion may exist regarding the diagnosis since torsion of an adnexal pedicle, exacerbation of chronic tubal disease, ectopic gestation or ureteral stone may all produce similar signs and symptoms. To attempt to rule out proximal tubal involvement or fundal pathology as the origin of pain, unilateral uterosacral block with local anesthetic may be done.⁹ This procedure relieves homolateral pain if originating from the cervix, the proximal tube or the fundus. If the distal tube or appendix was involved, this procedure would have no effect on the discomfort.

The symptomatology and diagnosis of appendicitis are about the same in the gravid and non-gravid state. Nausea, vomiting, muscle spasm, rigidity, fever and leukocytosis are usually present in most cases, but the interpretation of these findings may be difficult, as previously noted, because of the displacement of the caecum and appendix. This is particularly true in cases of retrocecal appendix.

During pregnancy, a patient presenting with the above symptoms must also be evaluated for possible ureteral calculus. With calculus there is usually sudden onset of pain as compared to the pain of appendicitis which is more gradual in onset. A complete urinalysis will reveal the presence of red blood cells supporting the diagnosis of ureteral calculus.

Management

It has long been established that acute appendicitis is a surgical disease.² The presence of appendicitis in pregnant women is an acute emergency and the best results are obtained if the patient is operated upon in the first twelve hours after the onset of symptoms. Radman has shown that pregnant women tolerate surgery as well as non-pregnant women do. Kurtz,¹⁰ et al. feel that the greatest adverse effect to surgery is delay. It is generally felt that the uterus should not be disturbed during the operative procedure.

University of Arkansas Medical Center Series

All diagnosed cases of appendicitis in pregnancy at the University of Arkansas Medical Center from 1950 to 1965 were reviewed. A total of fifteen cases were found. Considerations of age, gravidity, parity, trimester of gestation, antecedent history, degree of leukocytosis, and fetal and maternal salvage were made.

RESULTS: The average age was 28 years with the youngest patient 16 and the oldest 41 years of age. Their gravidity and parity averaged 6 and 4.2 respectively with the highest being a gravida 17, para 16 and the lowest being a primipara. Two cases (13.3%) were found to occur in the first trimester and eight cases (53.3%) were diagnosed in the second trimester. Four cases representing 27% were found in the third trimester and one case was found incidentally at time of a postpartum tubal ligation.

Symptoms elicited from history revealed cramping abdominal pain and right lower quadrant pain to be the most consistent finding with fourteen of the fifteen (93%) having this complaint. Eleven patients (73%) complained of nausea and vomiting while only six (40%) noted anorexia and three (20%) complained of right upper quadrant pain.

Although five cases had perforated appendicitis and abscess formation, the average leukocyte count was 12.4 per cu. mm. with 7,500 to 28,000 range. Quite incidentally the highest and lowest cell counts were found in patients with abscess formations. Ten patients had initially recorded oral temperatures below 99.6° Fahrenheit and three up to 101° Fahrenheit, while two had temperatures greater than 101° Fahrenheit.

All infants were delivered alive and/or near term except one which was delivered ten weeks

postoperative of a premature stillborn. There were no maternal deaths.

Discussion

Appendicitis during gestation, according to our data and others, occurs more commonly in the second trimester of pregnancy. Although the uterus has risen out of the pelvis and a considerable displacement of the caecum and appendix occurs, the majority of the cases of appendicitis will present with the complaint of right sided abdominal pain.

During the first trimester the diagnosis is less difficult and the signs and symptoms are similar to those of the nonpregnant. However, nausea and vomiting which are so typical in appendicitis is also a common symptom during the first trimester of pregnancy.

Leukocytosis is a common finding in appendicitis although it is not constant and one case included in this group was found to have a large quantity of free pus in the peritoneal cavity at laparotomy but her leukocyte count was only 7,500 and her temperature 100.6° Fahrenheit.

After the provisional diagnosis of appendicitis has been made and exploratory laparotomy has been elected, the type of anesthesia as well as the type of incision must be considered. Nine of the patients in this group had spinal anesthetic and six had general inhalation anesthetic. No significant difference in the type of anesthetic was found in relation to fetal salvage or post operative morbidity. The six patients in the group that were febrile prior to laparotomy immediately became afebrile after surgery. One patient afebrile before surgery spiked a temperature to 101° Fahrenheit the first post operative day, but this returned to 98.6° Fahrenheit the following day, and was due to post operative atelectasis.

Five patients were explored through the classical McBurney's incision, three of which were in the third trimester and one in the first trimester. Five other patients had transverse abdominal incisions at the level of the umbilicus with division of the muscle layers. Three patients had right paramedian incisions over the right rectus muscle; and two patients had midline incisions. No related problems of exposure, need for incision extension or wound dehiscence was recorded.

In fourteen cases the appendiceal stump was inverted by purse string suture into the caecal base. Because of the friable nature of the tissue at the operative site, inversion was not carried

out in one case. This patient, interestingly, had no post operative morbidity.

Five cases of perforative appendicitis with abscess formation were found in this study and only one was drained transabdominally following amputation of the appendix. Two patients spiked fevers the first post operative day to 102° Fahrenheit. One of these patients had a drain in place.

The post operative use of progesterone therapy is felt to have little effect in the prevention of premature labor and abortion,¹¹ although it may be utilized if desired. None of the patients in this study received post operative hormone therapy. Prompt surgical intervention in suspected cases of acute appendicitis is the most effective method of reducing premature labor and abortion.

Fetal mortality was recorded in one case. This patient developed acute appendicitis at twelve weeks gestation and ten weeks following a satisfactory recovery, she delivered a premature still-born infant. No association with the previous surgery could be found.

Summary and Conclusions

1. Fifteen cases of acute appendicitis with and without perforation were treated at the U.A.M.C. during the fifteen year period from

1950 to 1965.

2. Appendicitis in pregnancy is a second trimester disease.
3. The most common symptom in appendicitis during pregnancy is cramping, right lower quadrant pain associated with nausea and vomiting.
4. Exploratory laparotomy during pregnancy caused no premature labors or abortions.
5. There were no maternal deaths.

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Cerebral Infarction and Intracranial Arterial Thrombosis

- J. Moossy (University of Pittsburgh School of Medicine, Pittsburgh) *Arch Neurol* 14:119 (Feb) 1966

The frequency with which thrombi in the intracranial arteries are associated with recent cerebral infarcts was assessed 2,650 brain dissections by one observer. All specimens were from a single general hospital autopsy population. An attempt was made to consider only those cases in which there was a strong presumption that atherosclerosis and its complicated lesions were the major fac-

tors in the pathogenesis. Infarcts attributed to embolism and other factors deemed less pertinent were excluded. In 142 cases of recent cerebral infarction, an appropriately located intracranial arterial thrombus was demonstrated 78 times (55%). Comparisons are made with other studies in the literature, including those in which both intracranial and extracranial arteries were evaluated. The clinical implications are discussed. The present study suggests that the role of intracranial factors, especially thrombosis, may be more important than is currently emphasized.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



THE COMPROMISED FETUS

Submitted by

Byron L. Hawks, M.D., F.A.C.O.G.

Awareness is the keynote to the considerate management of labor and delivery of the compromised fetus. Awareness that stems from probing prenatal care. Prenatal care that is based on the knowledge of past history both obstetrical and conventional. When labor begins of its own accord in a patient who, by history, represents a prime candidate for placental insufficiency, it may be too late for that particular baby. Proper prenatal care is not merely a controlling gesture it is a time for appraisal and planning. Planning for the ultimate climax—labor and delivery. The crucial twenty-four hours of this evolution may well make the difference of life or death for the infant, or, what is worse, a lifetime of mal-development. It is somewhat unrealistic to rely on nature to plan her own conclusions when the science and art of obstetrics has the power to intervene and support the obvious failings of nature. Survival of the fittest by natural selection is no longer the sop for poor obstetrical care.

Certain fetuses are compromised from the moment of conception by genetic combinations that may be compatible for life but are a disaster to family and community. Society has an obligation to fulfill in these situations. Antiquated laws and restrictive hospital rules must yield to obvious sterilization indications. Sadly enough, it usually requires the birth of at least two products of such a union before the ponderous machinery of pre-

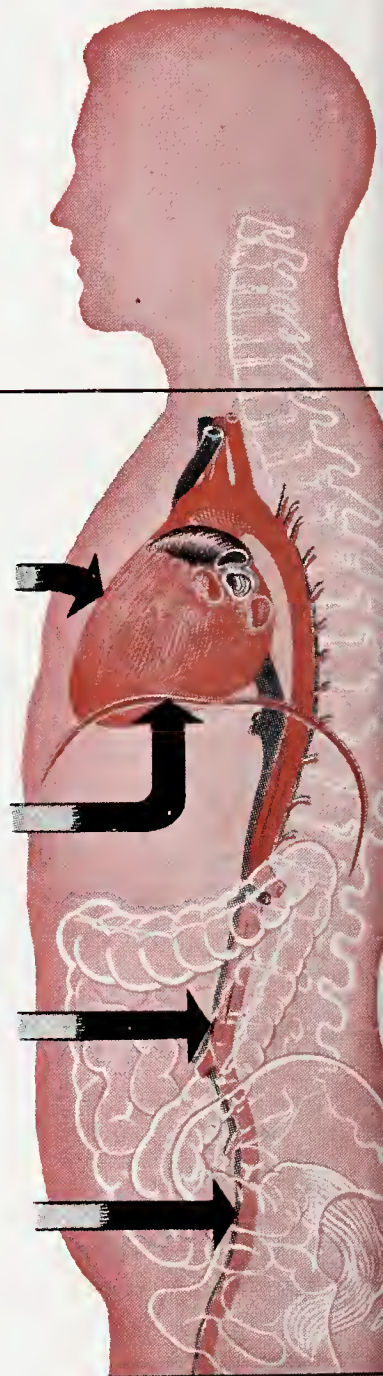
vention begins to creak. Eugenic sterilization is not a popular subject at any staff meeting or at any legislative council. Only recently has contraception been a topic for public discussion and acceptance and, only with timed steps, has government moved in with meager support. The population explosion propaganda that is now at its zenith may propel public thinking beyond its present day apathy.

Certain pregnancies are compromised during the first trimester by viral and drug interference with the progressive complexities of organogenesis and growth. Rubella infection before the eighth week carried dire statistical odds for the silent intrauterine passenger. The statistical outlook for a normal infant is not hopeless but hardly reassuring. Obstetrical advice under these circumstances must include, as one recommendation, that of therapeutic abortion. No state in this land allows for an interruption of pregnancy for fetal indications alone. Hospital rules are equally as restrictive and, understandably so, for accreditation approval must not be placed in jeopardy. This situation is all very protective and very sincere, but hardly an example of facing up to the realities of modern medical thought. Abortions for early rubella attacks in pregnancy are accomplished within hospital confines but usually the mental deterioration of the mother becomes too obvious and fetal concern fades as an indication. The odds of having a normal child following a

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SEARLE

Research in the Service of Medicine

rubella infection in early pregnancy is not to be considered, it is what the stakes are that really matters.

Drug consumption in American women of child bearing ages has become a way of life. Consider the unmarried woman who misses a few days of contraception pill coverage and then resumes her usual daily dosages while supporting a rapidly dividing ovum. The list of drugs that may affect the orderly processes of early cell division and chromosome alignments has grown to major proportions. We cannot enforce therapeutic nihilism as physicians but we can educate our female patients and alert them to regard each menstrual period as a time for drug inventory. We should assure ourselves that every request form for routine x-ray studies or isotope treatment has a space for recording of the last menstrual period of the female patient undergoing the test. Physicians and their technicians should refuse acceptance of patients for these studies unless satisfied that this requirement is completed.

Let us consider an area that allows for clinical thought. Thought, that if applied precisely, should result in salvage, or better, the rescue of a baby who would otherwise wither on the vine, or expire during its pelvic descent in labor, or become a lasting memorial to inept obstetrics.

It has been said, that 30% or better, of all children in colonies established for the care of the mentally retarded or birth defects are the result of premature labor. Premature labor may be defined as labor that commences before the ideal expected delivery date as estimated by menstrual history and substantiated by careful prenatal care. This last phrase "substantiated by careful prenatal care" is the key to sane management in the premature labor of any woman. In this Pepsi-Cola age premature labor is often productive of an APGAR 10 seven-pound baby! When all clinical clues establish that a true premature labor is in progress then the total skill of the obstetrician is brought to the fore. The first decision to be made, is labor truly underway? This is the most difficult of all decisions, for, should the conclusion be reached that false labor or severe Braxton-Hicks contractions are present then the obstetrician must prevent rather than manage such a labor. Prevention calls for sedation as part of the management; should this false labor, in truth, be

a terminating labor, then any sedation administered may be too much a blow for the already handicapped intrauterine passenger. Why premature labor occurs is a subject of much speculation; why normal labor begins is just as much a mystery. Repeated premature births in the same patient should point to a search for the congenital uterine anomaly, the incompetent cervical os, chronic cervicitis, or constitutional disorders of a major degree.

When premature labor is a fact, and, an inevitable event, then the duty of the obstetrician is clear. Support for the fetus is the paramount issue; etiology of the abnormal labor is not a present consideration but should be tucked away as worthy of thought and review at a later date.

What is the proper conduct of premature labor? Obviously all of us will not agree on this subject. First, the patient must become part of the plan of management. She must be told of the problem and must accept certain discomforts. Correct direction of such a labor without total cooperation from the mother is impossible. She will, invariably, accept her role in this dangerous labor if it means a better chance for her baby. So, inform her and keep her informed and conscious.

There is no place for analgesia of a sedative or opiate form in premature labor. The respiratory centers of a premature are brittle enough without adding the slightest amount of depressant cross placentally. In place of analgesiacs, oxygen should be substituted by a well fitting face mask. Oxygen throughout these labors is fundamental. Fetal membranes should be preserved and only spontaneous rupture accepted. Epidural analgesia represents a true implement of aid to the obstetrician and should be instituted once labor is known to be irreversible.

Descent and dilatation require careful monitoring by the attendant, for the opportune time for delivery must not be left to the caprice of nature. As soon as dilatation is nearing completion these laboring mothers should be taken to the delivery room where preparation for delivery has been underway; incubators are warm; a pediatrician is present; accessories for resuscitation and supplemental anesthesia of a regional type are available.

In the case of the premature vertex, as soon as dilatation is complete and the presenting part is on the perineal floor a wide episiotomy should

be made regardless of parity and forceps of the Elliott type applied to the premature head and the infant carefully guided through the normal path of subtending the pubic arch. Delivery must be controlled. Aspiration of the nares and the pharynx may well be part of the obstetricians function at the perineum, but it should be gentle. This compromised baby needs warmth immediately and the attention of a competent extra pair of hands. In the absence of the hands, it still needs warmth before anything else. It does not need to be weighed, it does not need a bath. It needs warmth and a reasonable level of oxygen—it needs a modern isolette and constant observation. It probably should be in the premature nursery before the first stitch is in the perineum. When to cut the cord of the premature baby is a constant debatable point. It is of small matter, but as a general rule, one should wait until at least an inspiratory gasp has occurred.

Should the premature present as a breech, then statistics are depressing for eventual survival and normalcy. The principle of labor management and delivery are the same substituting Piper forceps for the aftercoming head.

The next most difficult of management problems concerns the patient with premature rupture of membranes. Why this accident occurs is one of much conjecture. Possibly this situation could be avoided if more attention was paid to the treatment of cervicitis during the antenatal period. Fortunately, when the accident occurs at or near term, labor usually develops as a normal and natural result. The occasional patient that does not enter labor within twenty-four hours begins a process that is detrimental to the fetus and may well contribute to her own postpartum morbidity. Labor should be induced in all women past thirty-six weeks of gestation who have ruptured membranes beyond twenty-four hours. This induction is only instituted after proper Roentgen investigation of the pelvic diameters and position of the presenting part. This last precaution is taken regardless of the patient's parity. The conventional oxytocic approach and safeguards are used. Vaginal examinations and rectal examinations should be kept to the minimum.

For the unfortunate and rare patient who ruptures her membranes earlier than thirty-six weeks, temporization is indicated and observation at the hospital level is maintained for at least two days. If no labor ensues, these patients may be dis-

charged with instructions to avoid coitus and douching. They should report any fever or chills immediately. Antibiotics add nothing to the regime of home management unless vaginal examinations were excessive during the hospital stay.

What about the diabetic, the chronic hypertensive, the placenta previa and abruption patients, the cardiac and incompetent os group, the grandmultipara and the under 16 year old girl, the secondary uterine inertia, the multiple pregnancy, the repeat cesarean section patient, the isoimmunized patient, all of these add to the compromised fetus collection.

The diabetic is known to reach a point in her gestation that becomes critical for her fetus. This time is substantially a statistical and clinical truth—it is approximately the 36th to 37th week. Fetuses of such mothers are large prematures at this stage of their intrauterine life and are better candidates for the nursery than for continuing rapid intrauterine growth. Hence, induction of labor is indicated at 36 to 37 weeks with the usual precautions mentioned before. Delivery should be carefully managed and should be instrumental. Anesthesia of the regional type is preferable. It must be assumed that all diabetics who are pregnant have had careful prior adjustment of their basic difficulty, diabetes.

Much the same management is indicated for the chronic hypertensive as for the proven diabetic. Both conditions are responsible for the slowly progressive placental deterioration that gradually interferes with gaseous exchange and disposal of waste from the fetus. Placental insufficiency is a term bandied about in obstetrical circles and, no doubt, is an entity. It is unfortunate that a simple clearance procedure has not been developed that would alert the obstetrician as to when or when not to interfere. It is hoped that we are correct in the interruption of these pregnancies sometime before chronological term is reached. It is either that one keeps aware of this diminishing placental function or an intrauterine death must be accepted. In the case of the diabetic, obstructive labor may well be part of the picture.

The separation of the normally implanted placenta provides the obstetrician with a philosophical problem as well as a clinical decision. The diagnosis is readily made when pain in the uterus

appears without a rhythmic pattern and if bleeding also occurs. It is only the rare patient undergoing this attack that should provide a suitable candidate for immediate section. Operative delivery of the cesarean variety should be limited to those patients who present with well localized uterine tenderness, absent or only minor bleeding, normal fetal heart tones, in excellent vascular balance, and preferably somewhere late in the third trimester. Under these circumstances, it is probable, that a baby may be salvaged who conceivably will not become a mentally retarded tragedy or a spastic.

Usually, it is far better to be vigorous and take steps toward emptying the uteri of such patients. This is best accomplished by rupture of the membranes and oxytocic augmentation and stimulation of the uterus. Of course, proper precautions call for availability of whole blood, fibrinogen, and adequate clotting studies during labor.

Abruptio is invariably associated with an underlying vascular disorder of a major magnitude and should be an anticipated event rather than a surprise to the aware obstetrician. Family planning advice or sterilization are certainly a postpartum responsibility of the physician.

Placenta previa is tolerable to most fetuses providing placental localization is amenable to procrastination. When previa is total, little can be gained by conservative management and, as a rule, presenting bleeding is usually of such magnitude that the logical movement is toward the operating table. There are subtle advantages that can be put to use at the time of section. The obstetrician is probably better advised to perform a classical section rather than gamble on entering the site of uterine placental attachment. Too much time can be lost reaching the umbilical cord if the placenta must be traversed first. This would be most detrimental to an already compromised fetus who usually is premature under these circumstances. Again pediatric assistance and all of the armamentarium for the care of the premature baby must be available in the operating room. It is not wise to delay cutting the cord at these operative deliveries. The baby is always held above the level of the placenta and retrograde loss of blood from the baby is a distinct reality. Stripping the cord is not physiological.

Marginal previas discovered by double set-up at term are amenable to amniotomy and vaginal

delivery, especially in the multipara. The primipara under such circumstances probably should go to section.

Expectant management has a place in third trimester bleeding of single occurrence or minimal amounts. It entails meticulous "hands off" discipline and the use of other than manual detection of the placental site. This may be accomplished by isotope means or by placentography. This management, in about 10% of highly selected cases, may allow for a few more weeks of intrauterine existence for the premature baby. This may be better than the best isolette ever manufactured. Of course, carrying expected care to a ridiculous end is not sensible. By this is meant, transfusions of whole blood at frequent intervals to combat gross vaginal bleeding. In general, considerable hemorrhage occurring after conservative management has been started calls for a double set-up examination and a definitive decision as to the route of delivery.

The incompetent cervical os syndrome has been adequately described by Lash, Danforth and Shirodkar. It is not intended to discuss their varying disagreements as to the etiology of the syndrome. It is enough to know, that the entity exists and that it can be treated. The Lash procedure is an interim solution and has no bearing on the subject of this paper other than an obstetrician's responsibility to advise his patient that such surgery is available and may allow for success in future pregnancies. The encirclage procedure of Shirodkar does enter this discussion and represents a must approach to the patient who is found late in the second trimester with painless cervical dilatation and protruding membranes, regardless of parity. A few days in bed, in the Trendelenburg position, in the absence of contractions, infection, or bleeding, requires that the Shirodkar approach be attempted. It has proven to be a well advised, though heroic effort, to promote a mechanical barrier for immature delivery although the issue is often forced by a premature delivery. A failed Shirodkar procedure should lead to the interim Lash correction which is a preferable solution. The Shirodkar procedure is a temporizing affair and the Lash a more logical surgical correction of a defect whether it be mechanical or a variation in cervical stroma.

Management of the isoimmunized pregnancy

has gained support by reason of amniocentesis and spectrophotometric analysis of amniotic fluid for pigment. By observing the trend in pigment density it is now possible to know something more of the condition of the sensitized fetus. In certain rare situations, an intrauterine fetal transfusion may be indicated. This support is dangerous for the fetus, but represents its only lifeline to viability.

Much more could be said of the obstetricians role in the management of obstetrical patients who are promoting an environment lethal to their fetuses. Intercurrent urinary infections must be vigorously treated; early pre-eclampsia actively attacked; anemia of any type corrected; the grand-

multipara, the under sixteen years of age, the out-of-wedlock pregnancy, the socio-economically deprived, all add to the problem of prematurity which returns us to our most pressing problem in obstetrics today. Reduce premature labor possibilities by an unrelenting attack on its causes and the difficulties in management become obsolete. This day will never come, so that the obstetrician is left with the ever discouraging perinatal mortality and morbidity that is as bad today as it was 20 years ago. Maternal mortality is at an irreducible level as of now; presently the stature of an obstetrical service will be better judged by its perinatal mortality figures than its maternal mortality rate.



Influence of Respiration on Venous Return in Pulmonary Emphysema

F. K. Nakhjavan, W. H. Palmer, and M. McGregor (Royal Victoria Hosp, Montreal) *Circulation* 33:8 (Jan) 1966

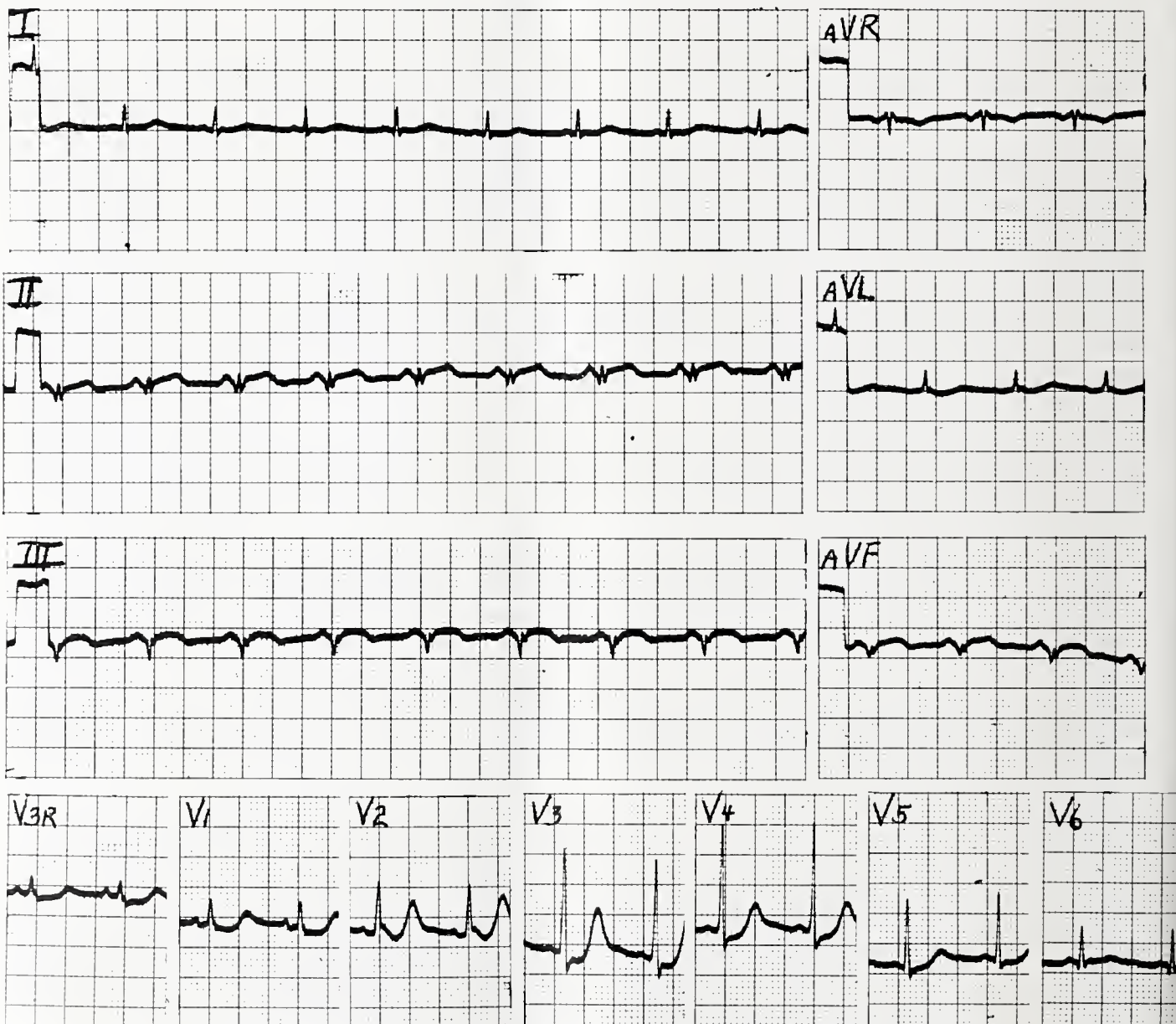
The influence of respiration on the pattern of flow in the upper abdominal vena cava was studied in 15 patients with pulmonary emphysema and ten control subjects by angio-cardiography and pressure recording. In normal subjects and nine emphysematous patients blood flowed headwards in the inferior vena cava (IVA) throughout respiration with an increase during

inspiration. In six emphysematous patients, however, flow was greatly reduced or completely arrested during inspiration and increased in ve-headwards in the inferior vena cava (IVC) became distended with a rise in transmural pressure during inspiration. These changes occurred in patients with most marked hyperinflation of the lung but were not related to pulmonary hypertension or hypercapnea. It is possible that inspiratory obstruction of the IVC may account for the peripheral edema that is sometimes observed in patients with emphysema in the absence of pulmonary hypertension or cor pulmonale.



HISTORY: State Hospital patient, adult male with mental illness; history could not be obtained.

ANSWER ON PAGE 518



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

ANSWER ON PAGE 518



23-24-05

18 month old male

HISTORY: The patient had an enlarging soft tissue mass in the right frontal area of the scalp for about 2 months and a underlying bone defect was demonstrated on a skull film. He had bilateral otitis media. There were no symptoms referable to the leg.



PUBLIC HEALTH AT A GLANCE

Arkansas Morbidity — 1965

The accompanying table of statistical data emphasizes the need for better reporting of all conditions since underreporting is obvious. Of course, the more serious the condition, the more likely it is to have better reporting.

Of particular note is the rise in tetanus cases during the last year. Arkansas will be plagued with sporadic cases of tetanus as long as the population is susceptible whether from failure to have the initial series or to keep up adequate stimulating or booster injections.

The enteric diseases, especially infectious hepatitis, will continue to occur endemically and even epidemically until everyone becomes aware of the need for improved community and personal sanitation. Educators stress the usefulness of repetition as a pedagogical tool; therefore, it behooves the medical profession to repeatedly recommend diligent, adequate handwashing before eating and after using the bathroom. Human nature being what it is, the pressures of meeting temporal deadlines may cause a slighting of the most important things we do as far as health is concerned.

The rise in aseptic meningitis reflects reclassification of central nervous system viral diseases with the improvement in diagnosis now possible for poliomyelitis cases.

In 1965, the reported number of animal bites in Arkansas was 831 as compared to 1,032 for the same period in 1964. This slight reduction in the number of animal bites reported gives us little reason for rejoicing. This is especially true if you pause to realize that these figures relate to "reported bites" and do not reflect the "true" incidence of animal bites. Undoubtedly, many bites go unreported, especially if an animal bites the owner or if the bite is a minor one. It is most important to remember that Arkansas, is endemic

for rabies and all animal bites should be given serious consideration. Other factors of great concern are cost of dog bite treatment, cosmetic problems due to facial wounds, loss of wages and the mental anguish that parents suffer when their child is bitten by a dog or some other animal.

Comparative Reporting of Cases During 1965 and 1964

	1965 Total	1964 Total
<i>Notifiable Diseases and Conditions</i>		
Amebiasis (amebic dysentery)	11	7
Ancylostomiasis (hookworm disease)	4	9
Animal bites	831	1,032
Anthrax in man	—	1
Ascariasis (roundworm)	13	36
Blastomycosis	20	28
Brucellosis (undulant fever)	10	6
Cancer	1,041	1,262
Chickenpox	483	300
Diphtheria	2	3
Encephalitis, primary	12	17
Encephalitis, postinfectious	8	19
German measles (rubella)	428	1,025
Hepatitis, infectious	339	290
Hepatitis, serum	9	8
Histoplasmosis	54	48
Leptospirosis	2	3
Malaria (foreign origin)	1	—
Malaria (Mexican National)	—	1
Measles (rubeola)	1,195	1,156
Meningitis, aseptic	10	3
Meningococcal infections, including		
meningococcemia	19	36
Meningitis, other and unspecified types	45	57
Mononucleosis, infectious	28	33
Mumps	240	1,014
Occupational disease: silicosis	1	—
Pertussis (whooping cough)	25	90
Poliomyelitis, total	2	—
paralytic	2	—
Psittacosis	—	1
Rabies in animals	99	152
Rheumatic fever, acute	5	4
Rocky Mountain spotted fever	7	2
Salmonellosis, including paratyphoid fever	148	144
Shigellosis (bacillary dysentery)	161	162
Streptococcal sore throat, including		

FEATURES

scarlet fever	121	232
Tetanus	13	8
Tularemia	66	67
Typhoid fever	16	18
Typhus fever, endemic	1	1
Tuberculosis (from Division of Tuberculosis Control):		
Pulmonary: total	596	609
active positive sputum	409	431
clinical impression only	58	41
primary active	129	137
Nonpulmonary	65	57

Venereal Diseases (from Division of Venereal Disease Control):		
Chancroid	10	23
Gonorrhea	6,167	7,020
Granuloma inguinale	2	2
Lymphogranuloma venereum	1	1
Syphilis: All cases	1,202	1,256
Primary and secondary	203	227
Early latent	73	64
Total reported cases	13,789	16,534



Sudden Illness as a Cause of Motor Vehicle Accidents

B. Herner, B. Smedby, and L. Ysander (Lasarettet, Varberg, Sweden) *Brit J Industr Med* 23:37 (Jan) 1966

Forty-one of the 44,255 road accidents reported to the police in one region of Sweden from 1959 to 1963 were, or probably were, caused by sudden illness in the driver of a motor vehicle. All 41 were males, and the illness was most often due to epilepsy or myocardial infarction. Eight drivers died at the wheel from their disease, but no other persons were killed in the 41 accidents. Only in 19 out of the 41 cases was there any possibility of a previous medical examination have indicated that the man was unfit to drive. In view of this, and the extremely small proportion (about 1 in 1,000) of accidents caused by sudden illness at the wheel, there is little point in providing for general measures such as periodic medical examination to prevent these accidents.

Electron Microscopic Observations in Primary Biliary Cirrhosis

F. M. Klion and F. Schaffner (Mount Sinai Hosp, New York) *Arch Path* 81:152 (Feb) 1966

Needle biopsy specimens of liver obtained from patients with primary biliary cirrhosis were examined with the electron microscope to evaluate the roles of liver cell damage, cholestasis, and the mesenchymal reaction in the liver lobule in the pathogenesis of the disease. Ultrastructural alterations of the hepatocytes were minimal and non-specific. Morphological evidence of cholestasis, especially canalicular dilatation, was not prominent early in the disease and was less than the amount of biliary components in the hepatocytes would indicate. The inflammatory response was predominantly intrasinusoidal, and early it was mainly lymphoid; later, it became more macrophagic. The findings indicate that the disease is not primarily a hepatocellular one or "hepatitis" but support the concept that bile duct abnormalities constitute the main pathogenetic mechanism.



EDITORIAL

THE NURSING SITUATION

Alfred Kahn Jr., M.D.

Despite the fact that there have been signs for a long time that the hospitals were short of personnel to carry out patient care, the full impact has not reached the public and the physicians in this area until the crisis was on us. This is often the case in other walks of life and, in fact, the critical nature of the situation often is of value in that it prompts strenuous and concerted activity to remedy the situation.

The so-called nursing shortage probably should be redefined. What is meant by this is the lack of trained personnel to do bedside care of the patient. The reasons for this fall into two categories: the acute problem and the long range problem.

Unfortunately, most of the discussions about the lack of bedside personnel have had to do with the acute shortage. This so-called acute shortage simply means that there are barely enough registered nurses in this area to keep the hospital in what one might term a state of compensation. The very slightest loss of personnel so to speak decompensates the hospital with regard to trained nurses. A considerable effort is now being expended to try and find out the reasons for the current decompensation in the Little Rock hospitals. Basically, the cause is the critical lack of nurses. However, superimposed on this are some acute problems which have caused the nurses to leave the hospitals, admittedly small perhaps but still adequate to tip the scales unfavorably. Foremost among these problems is that of salary. After three years of nursing training, many nurses can get more money by going to a Veterans Administration Hospital or into a physician's office than they can obtain by working in a hospital. Who is to say whether or not their starting salary is adequate? In a world of free economy it has always been the policy that the

worker has a right to try and obtain the best salary which he can get. And yet \$350.00 per month, after three years of training, is better than many young college women get with a degree and after four years of training. This is no attempt to say that \$350.00 is the right amount to start nurses at. It is simply to indicate that they can get higher pay in a Veterans Administration Hospital whose salaries are based on a nationwide scale, or in a private physician's office where, due to the limited number of personnel, a higher wage scale can be paid. Americans are very jealous of their leisure time. One of the major complaints of nurses is that they would like to have weekends off; many nurses do not want to work nights or split shifts; all of these things are reasonable but they add to the problem of staffing the hospital. Conflict with nursing offices who are trying to staff the hospital often brings about the charge of dictatorial policies in nursing offices which really is not the case. It is simply a rather profound difference in well-meaning people—the hospital has to staff the floors and the nurse unquestionably needs some time at home with family and children. There are other irritating seemingly minor problems which have entered into the overall acute picture and turned nurses away from the hospital. These include frequent change of assignments, association with less trained personnel in the care of the patients, etc. In other words, the short range problem is one of “making do” with barely enough nurses. This means that some compromises have to be made on both sides.

The long range problem of the so-called nursing situation has to do with semantics as much as anything else. Actually, what the hospitals are attempting to do are to provide excellent bedside nursing care by technically trained individuals competent to do the job. Twenty-five or

thirty years ago the standard worker on the floor of the hospital was the so-called trained nurse. This individual had three years of training and, during her training years, she worked on the floors of the hospital in a manner similar to a graduate trained nurse. As time has gone by, the trained nurses have very understandably tried to raise the standards of their group. This has resulted in an attempt by the trained nurses organizations to have their graduate nurses, in as many instances as possible, have a college degree. The result of this is that these individuals, by virtue of their training, are equipped to do administrative work as well as to perform nursing functions. Now rather than being just a graduate trained nurse, what we really have is a medical administrator with a degree. It looks as though it would be wise to have the trained nurse organization change their nomenclature to that of nursing medical administrator or some such term as that. Perhaps it would even be wise to delete any reference to the word nurse. In all events, this upgrading policy has resulted in two things; a lack of qualified trained nurses to perform the functions which they formerly did, and a highly trained individual who is by virtue of his or her training capable of doing administrative work and might prefer to do it to bedside care. In the long range it would be better if these highly trained folks, who would be called medical administrators, were replaced in the hospital by a bedside care program; this would be a new category who are technically trained to take care of patients and are not so interested in administration. These folks could be called hospital technicians, nurse technicians, or some new expression. These folks could be trained to various stages of competence. There could be a one-year group who do exceedingly simple tasks of bedside nursing. There could be a two-year group who could do many technical things. There could be a three-year hospital trained group who were the tops in the field of bedside care. This is not intended in any way to reflect on the desire of the current nurse program which is trying to upgrade themselves and who are in a certain sense changing their hospital function. On the other hand, the long range program should take cognizance to this change which is occurring in the nurse field and immediately have an explosive expansion in the hospital schools which train young women to take care of patients at the bedside.

None of these thoughts are particularly new and yet in Arkansas this dilemma is now upon us and the problem of bedside care of the patients in the hospital has to be solved within the framework of our facilities.

The Pulaski County Medical Society has felt the nursing shortage acutely and, as a result, has had some exploratory meetings with interested parties. At one of these meetings, Mr. J. A. Gilbreath suggested the following plan which is an adaptation of one proposed in this area some months ago by Mrs. Mildred Armour. The plan is aimed at conserving teaching personnel, giving didactic lectures which will be of value to prospective workers in the nursing field and, lastly, to provide practical experience for the trainees. To accomplish this, it was suggested that since most paramedical personnel have the same basic didactic needs, that a formula should be worked out whereby there is a year's course in anatomy, physiology, chemistry, etc. which would be identical for nurses, technicians, etc. Even during this year it would have some bedside training experience. At the end of the first year, if any of these individuals desire to stop their training, they could stop and they would be qualified as a one-year nurse technician and could obtain a job based on this training within the scope of their training. At the election of the hospital an individual could continue in service training or simply be left at this level of competence. Some individuals might want to take two years' training. This would provide a year of further experience in bedside nursing or this would be the year that the technician begins active technical studies in radiology or whatever the field might be. An individual could be qualified at the end of a two-year training period as practical nurse technician or some other nomenclature could be used to identify these individuals as having had two years of training. It is important to point out that if this individual is in the nurse training plan, that she would be performing bedside nursing in moderate amounts in addition to receiving additional training; this is a very necessary aspect of the training program for both the hospital and the individual. Lastly, some individuals would want to take three years' training and these individuals would receive a designation equivalent to a graduate nurse technician or some other appropriate designation.

For this plan to work in a satisfactory manner,

there would have to be some means of licensing these individuals on a statewide basis is not on a national basis. Thus, the trainee could obtain employment at the proper level of competence in any hospital throughout the state and, if this plan were used nationally (it is our understanding that a similar plan might be in use elsewhere), then the trainee could be employed in other states at an equal stage of training. This plan need not

be in conflict with any of the so-called registered nurse training program but would be an additional training program in order to train individuals who are specialists in bedside care with emphasis being placed on practical nursing rather than emphasis being placed on a rather long college type education as advocated by the now existing registered nurse associations for their members.

MEDICINE IN THE



Council Minutes, January 23, 1966

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, January 23, 1966, in the Hotel Marion, Little Rock. The following were present: Hyatt, Thomas, Whittaker, Edwards, Gray, Millar, Townsend, Burton, Wood, Kennedy, Payton Kolb, Fowler, Long, Koenig, Norton, Shuffield, Saltzman, James Kolb, T. D. Brown, Verser, Snodgrass, Ellis, Price, Kahn, Easley, Herron, Shorey, Swindoll, Sizemore, Mr. James Suen, Mr. Henry Meinecke, Mr. Charles Guise, Mrs. Paul Gray, Mr. Paul Harris, Mr. Eugene Warren, and Mr. Schaefer.

The Council transacted business as follows:

- I. Chairman Thomas introduced Mr. James Suen, president of the Student American Medical Association at the University of Arkansas School of Medicine, Mr. Henry M. Meinecke, Vice President, and Mr. Charles W. Guise, Treasurer. Dr. Thomas welcomed them to the Council meeting and explained that this was an additional effort on the part of the Medical Society to establish better communications between students at the Medical School and medical organization.
- II. Dr. Whittaker and Dr. Thomas reported to the Council on the meeting on Title XIX of the new Medicare law called by the American Medical Association in Chicago. Title XIX covers provisions of the old Kerr-Mills Law, aid to dependent children, aid to the blind,

welfare, and extensions of those laws, included aid to the medically indigent.

- III. Dr. George Burton introduced Dr. Paul Sizemore of Magnolia.
- IV. Upon the motion of Saltzman and Koenig, the Council approved the actions of the Executive Committee dated December 22, 1965, attached hereto as part of these minutes.
- V. Upon the motion of Payton Kolb and Koenig, the Council voted not to accept institutional wine advertising for the Journal of the Arkansas Medical Society.
- VI. Upon the motion of Koenig and Wood, the Council voted to commend the Miller County Society for its leadership in areawide planning of medical facilities. By the same motion, the Council reiterated that it is vital that all areawide planning be kept on a voluntary basis and that active medical participation at all times is necessary.
- VII. The Council directed that the Society's Committee on Hospitals be advised of the action in paragraph VI above and urged to assist the Miller County Society and any other society in the State in actively participating in areawide planning.
- VIII. Upon the motion of Koenig and Long, the Council voted to recommend to the Constitutional Revisions Committee that it consider a constitutional amendment to establish a standing committee on areawide planning.

- IX. Dr. Kennedy reported on the Philadelphia meeting of the American Medical Association.
- X. Dr. Koenig discussed the licensing of laboratories in the State as it will be affected by recent Federal legislation. After considerable discussion and upon the motion of Saltzman and Koenig, the Council voted to request the Committee on Liaison with the State Board of Health to nominate members of an advisory committee to be appointed by Dr. Herron to assist him in setting up rules and regulations and the policing of laboratories within the State.
- XI. Upon the motion of Norton and Saltzman, the Council voted to refer to the Annual Session Committee a proposal by the Mead Johnson Company to award a prize for the best scientific exhibit at the Annual Session. The committee is to be advised that the Council is under the impression that it would be impractical to attempt the establishment of the award for the 1966 meeting, but it would like the committee's recommendation for its consideration for future meetings.
- XII. Dr. Saltzman discussed a suggestion by the State Tuberculosis Association that the Medical Society approve the use of mobile x-rays in the Northern counties of the State for a mass program to detect tuberculosis. The film would be read by radiologists and the program would be under supervision of physicians. After considerable discussion of the effectiveness of mass x-rays, as compared to skin testing for the detection of tuberculosis, the Council voted to receive the suggestion as information.
- XIII. Dr. Hyatt reported to the Council on his attendance at a White House Conference on Medicare attended by approximately 800 people, of whom only 75 were physicians. Dr. Hyatt commented that the physicians had had only a few days notice of the meeting while the other participants had received their invitation months in advance.
- XIV. Dr. James Kolb called attention to the fact that in the minutes of the Council meeting of October 31st the reference to the California Relative Value Schedule should be changed to read "the *current* California Relative Value Schedule". The Council agreed that this editorial change was necessary in recognition of the fact that the California Schedule is being

continually revised in accordance with experience gained in its use.

- XV. Upon the motion of Norton and Long, the Council voted to refer negotiations on the renewal of the Military Dependents' Medical Care contract to Dr. Long's Medicare Negotiating Committee.
- XVI. Upon the motion of Saltzman and Shuffield, the Council voted to approve a proposed resolution calling for the use of brand name and combination pharmaceuticals and opposing the use of so-called generic drugs in the various government programs. The headquarters office was directed to furnish Dr. O'Neal, of the Welfare Department, a copy, along with a letter asking him to discuss it with Mr. Phillips.
- XVII. The Council considered a request by Dr. Van C. Binns of the Drew County Medical Society regarding the establishment of a Review Board for the review of malpractice litigation prior to its coming to court. Mr. Warren, counsel for the Society, suggested that the Council receive Dr. Binns' resolution as information and write him that his suggestion is appreciated and that action has already been started by the Council and the subject is under study by the Bar Association and the Medical Society.
- XVIII. Upon the motion of Norton and Koenig, the Council voted to adopt a resolution opposing repeal of Section 14(b) of the Taft-Hartley Act and directed that copies of the resolution be sent to all Arkansas members of Congress.
- XIX. Upon the motion of Whittaker and Fowler, the Council voted to have a resolution drawn and published memorializing the late Dr. Joe F. Shuffield.

APPROVED: H. W. Thomas, M.D., Chairman

EXECUTIVE COMMITTEE MINUTES **Conference Call, Wednesday,** **December 22, 1965**

The Executive Committee of the Council of the Arkansas Medical Society met by conference call, Wednesday, December 22, 1965. The following business was conducted:

- I. Approved proposals to hold a dinner inviting all members of the Society honoring Dr. James Z. Appel, president of the American Medical Association, on January 23rd.
- II. Voted to call a meeting of the Council for January 23rd in Little Rock.

III. Selected the following men comprising a 21-man committee to represent the medical profession to set policy within the limits of PL 89-97 for the administration of the law by Blue Cross-Blue Shield of Arkansas:

Chairman: C. C. Long, Ozark

General Practice: Joe Verser, Harrisburg

C. Lewis Hyatt, Monticello

Radiology: Joseph A. Norton, Little Rock

Pathology: Kenneth R. Duzan, El Dorado

Internal Medicine: Clyde Tracy, Pine Bluff

Charles F. Wilkins, Russellville

General Surgery: Wright Hawkins, Fort Smith

Gilbert Dean, Little Rock

Martin Eisele, Hot Springs

Urology: Carl Wilson, Fort Smith

Allergy: Purcell Smith, Little Rock

Anesthesiology: John L. Weare, Little Rock

Dermatology: A. C. Bradford, Fort Smith

Ophthalmology: James Smith, Little Rock

ENT: E. L. Milner, Little Rock

Obstetrics-Gynecology: J. R. Pierce, Jr.,

Pine Bluff

Neurology and Neurosurgery: Robert Watson,

Little Rock

Psychiatry: W. Payton Kolb, Little Rock

Pediatrics: T. E. Townsend, Pine Bluff

Orthopedics: Elvin Shuffield, Little Rock

IV. Accepted with regret the resignation of Dr. Louis K. Hundley, for reasons of health, as co-chairman of the Medicare Fee Committee, chairman of the Special Fee Committee, member of the Budget Committee, chairman of the Fourth Councilor District Professional Relations Committee, and chairman of the Constitutional Revisions Committee of the Council. By unanimous agreement, the Executive Committee withheld action on Dr. Hundley's request to be relieved as Vice Speaker of the House of Delegates. The Executive Committee voted to nominate the following to replace Dr. Hundley in the various appointments:

1. Dr. C. C. Long as co-chairman of the Medicare Fee Committee and chairman of the Special Fee Committee.

2. Dr. H. W. Thomas as a member of the Budget Committee.

3. Dr. S. C. Monroe, chairman of the Professional Relations Committee of the Fourth Councilor District, and Dr. Julius Hellums, member of the Fourth Councilor District

Professional Relations Committee.

4. The Executive Committee appointed Dr. Randolph Ellis as chairman of the Constitutional Revisions Committee and appointed Dr. Lee Parker, Dr. Harry Hayes, Jr., and Dr. Paul Rogers to serve with Dr. H. King Wade, Jr., as members of the committee.

V. The committee appointed Dr. L. A. Whittaker and Dr. H. W. Thomas to attend a conference on Title XIX of the new Medicare Law to be held in Chicago, January 20th and 21st.

VI. Decided to ask the plastic surgeons to make their fee representations to the general surgery members of the Fee Committee to avoid making the Fee Committee so large as to become unwieldy.

VII. Voted to approve co-sponsoring with the Arkansas Hospital Association a workshop on the new Medicare law to be held May 11th and 12th in Hot Springs. It is anticipated that all the regulations will have been issued by that time and such a workshop will be helpful to members of the Society in the early phases of the new program.

APPROVED:

H. W. Thomas, M.D.

Chairman

Prescriptions for Welfare and Other Government Programs

Whereas, the Arkansas Medical Society supports the position that patients receiving assistance under welfare and other government programs should receive the same quality of medical care and drug products as other patients, and

Whereas, the Arkansas Medical Society opposes any limitation on quality which could have an adverse effect on the health or therapeutic response of patients receiving drugs under welfare and other government programs.

Therefore, Be It Resolved, that the Arkansas Medical Society adopts and endorses the following principles as being in the best interests of patients receiving drugs under welfare and other government programs:

Physician's Discretion. The physician's discretion to prescribe medication for patients under welfare and other government programs should be the same as for his other patients. There should be no interference with the physician's professional prerogative to prescribe precise drug

products or brands deemed to be in the patient's best interests.

So-Called "Generic Equivalents". Drug products bearing the same generic name are not necessarily equivalent in quality, potency, purity or therapeutic activity. Proposals that call for compulsory generic prescribing or require the dispensing of so-called "generic equivalent" drugs may jeopardize the health of patients.

Formularies. Formularies, when utilized, should reflect the intent to provide the specific drug products or brands which physicians have prescribed or ordered. They should contain a convenient procedure for furnishing, as needed, agents not included in the formulary.

Prompt Availability of Medication. Customary drug distribution channels for supplying medication best assure the availability of the medication when and where needed for patients receiving assistance under welfare and other government programs and for other patients alike.

ADOPTED: Council of the Arkansas Medical Society
January 23, 1966

Resolution Re: Section 14(b) of the Taft-Hartley Act

Whereas, the Arkansas Freedom to Work amendment to the State Constitution, bolstered by the Enabling Act of 1947, has safeguarded freedom of choice for all Arkansans at the places where they work, and

Whereas, The Freedom to Work law has been an important factor in the state's record-breaking industrial growth, providing tens of thousands of new jobs for our citizens and improving the living standards of all, and

Whereas, officials of organized labor demand that Congress override the right of states to enact and enforce such freedom-protecting laws, and

Whereas, union officials in seeking repeal of Section 14(b) of the Taft-Hartley Act, which recognizes the right of states to have Freedom to Work laws, have forced a repeal measure through the House of Representatives and now is clamoring for the U. S. Senate to adopt a repeal measure, now therefore be it

RESOLVED that the Council of the Arkansas Medical Society does hereby commend the members of the Arkansas Congressional Delegation for

their opposition to repeal of Section 14 (b), especially Senators John L. McClellan and J. William Fulbright for their effective contributions to the blocking of the repeal legislation in the Senate, and urge both Senators and the four Congressmen to use their prestige, influence and legislative abilities to help prevent the repeal or weakening in any degree of the provisions of Section 14(b) of the Taft-Hartley Act.

ADOPTED: Council of the Arkansas Medical Society
January 23, 1966

Women in Medical Schools

Women are manifesting an increased interest in medicine by increasing their numbers as both medical school applicants and as medical school graduates. With the growing shortages of medical personnel and the increasing roles in medicine compatible with the accepted roles imposed on women by our culture, even greater numbers of women may in the future consider medicine as a career.

There was a slow but steady increase in the number of women making application to and being accepted by U.S. medical schools in the years 1929-30 to 1964-65. In this time period the proportion of women in the accepted group has grown from 4.5 per cent to 9.1 per cent.

A true measure of the success of a group of students must follow their medical school progress from the time they enter medical school to such time as they leave it either as graduates or drop-outs.

In comparing the medical school progress made by women with that made by men, it is apparent that a higher percentage of enrolled males completed their medical education. Of all students entering medical school in the ten year period from 1949 to 1958, 91 per cent of the men and 84 per cent of the women ultimately received the M.D. degree. There are, however, differences between the groups in the reason for leaving school. The majority of men who drop out do so because of academic problems. Slightly more than half of the women leaving medical school do so for reasons other than academic difficulty.

THE MONTH IN WASHINGTON

Washington, D.C.—President Johnson has put a price tag of about \$4.5 billion on his fiscal 1967 health programs, both domestic and international.

The President's fiscal 1967 budget, for the year beginning next July 1, calls for spending about \$4.3 billion on domestic health programs under the Department of Health, Education and Welfare. Cost of medicare benefits will be in addition to this total because they will be paid for by Social Security taxes.

Spending on domestic health programs would have been greater if some—such as the new heart disease, cancer and stroke program—had not been cut back because of increased costs of the Vietnam war. The cutbacks mainly were effected by requesting smaller appropriations than Congress had approved. The appropriation requested for the heart disease, cancer and stroke program was only half of the \$90 million authorized by Congress.

Johnson told Congress he would submit international health legislation to:

- create an International Career Service in Health;
- help meet health manpower needs in developing nations;
- combat malnutrition
- control and eradicate disease;
- cooperate in worldwide efforts to deal with population problems.

Johnson said the United States must be prepared to help developing countries that ask for aid in controlling population expansion. He said:

"... population growth now consumes about two-thirds of economic growth in the less-developed world. As death rates be steadily driven

down, the individual miracle of birth becomes a collective tragedy of want."

Two federal reports—by the President's Council of Economic Advisers and the Social Security Administration—covered medical costs and overall national spending for health care.

The annual report of the economic council conceded that the "true" increase in medical costs may have been less than the dollar increase. The report said:

"In the most recent 5 years, medical costs have risen less rapidly than during the 1950's. This has been due primarily to the fact that prices of prescriptions and drugs have been declining. Also, the increase in charges for medical services—including doctors' and dentists' fees, eye examinations and eyeglasses, and hospital rates—has slowed down in comparison with the earlier period.

"The higher hospital and doctor charges reflected in the consumer price index may overstate the true increase in the cost of medical care when account is taken of the rising effectiveness of the care received. With the dramatic improvements in medical technology that have taken place over the postwar period, many patients get more real "services" from each day's stay in the hospital, or each visit to the doctor, than before."

The Social Security Administration reported that the nation spent \$36.8 billion in 1964 for health care, almost tripling the \$12.9 billion spent in 1950. Per capita expenditures more than doubled in the 15 year period, rising from \$84 to \$191 per person.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 100 RHYTHM: Sinus Tachycardia
PR: .12 sec. QRS: .08 sec. QT: .34 sec.

ABNORMAL: Significant Q in aVF, II, III, high R in V_{3R}, V₁.

COMMENT: Changes present in aVF and III indicate inferior infarction; the precordial leads showing counter clockwise rotation reflect infarction of the posterior wall.

ANSWER—What's Your Diagnosis?

X-RAY FINDINGS: The left femur contains a large expanding lytic bone defect with irregular slightly sclerotic margins.

DIAGNOSIS: The skull lesion was completely excised and found to be eosinophilic granuloma. It is presumed that the defect in the left femur is due to the same process. It responded well to small doses of radiation therapy.

Over 90 per cent of the 1964 expenditures were for health services and supplies. The balance was spent for medical research and construction of medical facilities.

There was a considerable shift in method of payment for personal health services from direct out-of-pocket payments to third-party payments. Payments by third parties which include insurance benefits, government payments and philanthropic payments, met slightly over one-third of the personal health care expenditures in 1950 and almost half of these expenditures in 1964.

Government payments continued to provide about 22 per cent of the funds for all personal health services.

* * *

The Justice Department has ordered coordination of federal procedures to assure that medical facilities and institutions of higher learning which receive government funds do not practice racial discrimination.

The Department of Health, Education and Welfare was assigned the main responsibilities, including:

- Preparing and distributing a compliance form to be submitted by all medical facilities and institutions of higher learning which receive federal money, and evaluating the submitted forms.

- Conducting periodic reviews of recipients and investigating any discrimination complaints against them.

- Attempting to secure voluntary compliance and notifying other departments and agencies when any such effort fails.

* * *

Both the American Medical Association and the Food and Drug Administration have warned the public against interpreting the acquittal of the promoters of krebiozen as meaning it is effective in the treatment of cancer.

A federal court jury in Chicago found the promoters not guilty of fraud.

"The results of a criminal proceeding should not be interpreted as establishing efficacy of the alleged new drug called krebiozen by its promoters," the AMA said. "Cancer sufferers should consult with their physicians and not try to determine for themselves what is the best course of treatment in their own individual cases."

"As far back as 1963, krebiozen was proved to be nothing more than mineral oil and creatine, a common laboratory chemical," the FDA said.

"That scientific judgment still stands. The FDA will carry out its responsibility to the public by doing whatever will be necessary to keep krebiozen out of interstate commerce. We will do this as a life-saving activity. Each day a person with treatable cancer relies upon krebiozen is a day that brings him closer to death."



Eighteenth Annual Meeting of the Southwestern Surgical Congress

The eighteenth annual meeting of the Southwestern Surgical Congress will be held April 18-21, 1966, at the Flamingo Hotel in Las Vegas, Nevada. Guest speakers will be Dr. Robert M. Zollinger, Ohio State University and Dr. Alton Ochsner, New Orleans, Louisiana.

The Aesculapius Award

Mead Johnson Laboratories has created the Aesculapius Award, designed to recognize and reward the excellence in concept, originality and execution of scientific exhibit presentations at annual meetings of state general practice associations.

Under the terms of this program, the most outstanding scientific exhibit is selected by a committee of the medical society. The author of the winning exhibit is presented with an appropriate certificate and a cash prize of \$200. Mead Johnson Laboratories' role in the program is limited to provision of finished mounted certificates and the prize money.



WHEREAS, Dr. William Riley Brooksher has been a member of the Arkansas State Cancer Commission, since it was established by Act 277 of the 1945 General Assembly as the official agen-

cy for cancer control in Arkansas; and

WHEREAS, Dr. Brooksher served as the Commission's second elected Secretary and as the Commission's Medical Director on a part-time voluntary basis from June, 1953, through 1965; and

WHEREAS, Dr. Brooksher has demonstrated outstanding leadership among the medical profession and devotion to the cancer control program, particularly for medically indigent patients; therefore be it

RESOLVED, that the members of the State Cancer Commission take this means of expressing their great appreciation to Dr. Brooksher for his service in the interest of cancer control and for his contribution as a member of the Commission during 20 years and as Secretary and Medical Director for 12 years; and

RESOLVED further, that a copy of these resolutions be spread upon the official minutes of the State Cancer Commission and that a copy, attested by the members of the Commission, be transmitted to Dr. Brooksher.

Adopted at a meeting of the
Arkansas State Cancer Commission
January 20, 1966

COMMISSIONERS

/s/Mrs. Mason G. Lawson
M. J. Kilbury, Jr., M.D.
H. W. Ward, M.D.
Thomas F. Dilday, Jr., M.D.
Frank G. Kumpuris, M.D.

Dr. Frank G. Kumpuris was elected Secretary of the Arkansas State Cancer Commission at its meeting Thursday morning, January 20, 1966, in the Commission's Central Offices, 912 West Sixth Street, succeeding Dr. W. R. Brooksher of Fort Smith. As Secretary of the Commission, Dr. Kumpuris will also serve as its Medical Director on a part-time basis without remuneration.

Dr. Kumpuris, who has been a member of the Commission for a number of years, is a past Director of St. Vincent Tumor Clinic, giving unlimited voluntary professional services to the cancer program of Arkansas.

Dr. H. W. Ward of Fayetteville succeeds Dr. Brooksher on the Commission by appointment of Governor Orval E. Faubus, who is Chairman of the Commission.

Resolutions were adopted by members of the Commission expressing appreciation for Dr. Brooksher's interest in cancer control and for his

contribution as a member of the State Cancer Commission for 20 years and his service as Secretary and Medical Director for 12 years.

WHEREAS, Dr. Frank Bryant is a member of the Jefferson County Medical Society and the Staff of the Jefferson Hospital, and

WHEREAS, Dr. Bryant made indefatigable efforts before numerous civic and private organizations on behalf of the contemplated improvements and additions we thought necessary to our hospital and our County Health Department, and

WHEREAS, Dr. Bryant's individual time consuming efforts were tangibly effective in securing public support and subsequent passage of the benefits we so urgently desired, and

WHEREAS, Dr. Bryant's influences were not for any personal gain, but for the betterment of the lay and the medical community.

THEREFORE BE IT RESOLVED that the Jefferson County Medical Society wishes to express its thanks and commendations to Dr. Bryant for all of his efforts to elevate our common good and

BE IT FURTHER RESOLVED that this Resolution become a matter of record in the minutes of the Jefferson County Medical Society and a copy be sent to The Journal of the Arkansas Medical Society.

Harold J. Morris, M.D., Chairman
Resolutions Committee
R. D. Dickins, M.D., President
Jefferson County Medical Society

Resolution: Dr. Joe F. Shuffield

On Wednesday, December 29, 1965, Dr. Joe F. Shuffield, revered and respected leader of Arkansas medicine, died of injuries suffered the previous day. We who saluted him in life come now to honor him.

He was a graduate of Tulane University School of Medicine. He served as President of the Pulaski County Medical Society and of the Arkansas Medical Society. He was not only noted for his skill in orthopedics, he was loved for his gentleness and interest in others. His zest for life was characterized by his interest in the outdoors. His devotion to mankind was expressed by his activities in medical teaching and his leadership on many state boards and commissions.

Dr. Shuffield's concern for the public and his profession resulted in his many years effective

work with the State Legislature on behalf of the practice of medicine.

When a man of such goodness and stature dies, all mankind is diminished, but those who knew him best grieve his passing most.

Therefore, be it resolved by the Arkansas Medical Society that Dr. Shuffield's life will continue to serve as an inspiration to the members of the Society; that the Society hereby expresses its boundless regret at the passing of so valued a friend and member.

Be it further resolved that this memorial be published in The Journal of the Arkansas Medical Society.

Adopted: January 23, 1966

Council of the Arkansas Medical Society

Resolution: Dr. William L. Newton

WHEREAS, the recent death of Dr. William L. Newton, a long honored and valued member of the Union County Medical Society, has caused his colleagues to pause with reverence and sorrow, and

WHEREAS, Dr. Newton was highly respected and revered by his contemporaries, by his patients, and by the entire community, and

WHEREAS, in order to express our sense of grief in his passing;

BE IT THEREFORE RESOLVED:

THAT we, the Union County Medical Society, express to his family the heart felt sympathy of our organization, and

THAT a copy shall be sent to his physician son and a copy to his wife and family, and

THAT this resolution be spread upon the permanent records of our Society, and

THAT we shall cause a copy to be published in the Journal of the Arkansas Medical Society.

Dr. R. L. Turnbow

President

Union County Medical Society

Resolution: Dr. Berry L. Moore, Sr.

WHEREAS, the recent death of Dr. Berry L. Moore, Sr., an honored and valued member of the Union County Medical Society for more than thirty years, and one of our past presidents, has caused his colleagues to pause with reverence and sorrow, and

WHEREAS, Dr. Moore was highly respected and trusted by his contemporaries, by his patients, and by the entire community, and

WHEREAS, in order to express our sense of grief in his passing;

BE IT THEREFORE RESOLVED:

THAT we, the Union County Medical Society, express to his family the heart felt sympathy of our organization, and

THAT a copy shall be sent to each of his two physician sons and a copy to his wife and daughter, and

THAT this resolution be spread upon the permanent records of our Society, and

THAT we shall cause a copy to be published in the Journal of the Arkansas Medical Society.

Dr. R. L. Turnbow

President

Union County Medical Society



PERSONAL AND NEWS ITEMS

Doctors Riley and Deneke Appointed

Dr. Warren S. Riley, El Dorado physician, and Dr. M. D. Deneke of West Memphis have been appointed to the Arkansas State Board of Health by Governor Orval Faubus.

Dr. Wynne Is Director

Dr. G. F. Wynne of Warren is a new director of the Warren Bank in Warren, Arkansas.

New Chicot County Hospital

Construction of the Chicot Memorial Hospital at Lake Village began in January 1966. The hospital is scheduled to be completed by March 13, 1967.

Dr. Brooksher Honored

The Arkansas State Cancer Commission has passed a resolution of appreciation honoring Dr.

W. R. Brooksher "for his contribution as a member of the Commission during twenty years and as Secretary and Medical Director for twelve years".

Dr. Henry Files as Candidate

Dr. Morriss Henry, a Fayetteville physician who has served as coroner for one year, has filed as a candidate for State Legislature, position number one, Washington County.

Dr. Appel Speaks

Dr. James Z. Appel, president of the American Medical Association, spoke to a meeting of the Pulaski County Health and Welfare Council in January at Little Rock.

Dr. Mashburn in A.A.G.P.

Dr. William R. Mashburn of Hot Springs has been elected to active membership in the American Academy of General Practice.

Dr. Gray Donates Books

Dr. E. M. Gray of Mountain Home has donated a twenty-three volume set of the Encyclopedia Britannica to the library of the First Methodist Church of Mountain Home. The gift was made in memory of his late wife and her sister. The presentation was made on December 14, Dr. Gray's 85th birthday.

Dr. Clark Completes Exam

Dr. Robert L. Clark of Conway has successfully completed the first phase of the examination leading to his admission as a diplomat of the American Board of Surgery.

Dr. Mahoney to Harrison

Dr. Paul Mahoney, formerly of Jacksonville, Florida, has opened an office in Harrison for the practice of obstetrics and gynecology. He is a 1951 graduate of the University of Arkansas School of Medicine.

Dr. Burton Is Speaker

Dr. George C. Burton of El Dorado was the guest speaker at the January 18th meeting of the El Dorado Lions Club. His subject was "Medicare".

Dr. Swingle Is President

Dr. Charles G. Swingle of Marked Tree was

named president-elect of the Mid-South Postgraduate Medical Assembly during a recent meeting in Memphis, Tennessee.

Dr. Rhinehart Named Fellow

Dr. William J. Rhinehart, Little Rock physician, was granted the degree of fellow of the American College of Radiology at the group's annual meeting in Chicago, Illinois.

Dr. Kinley in A.A.G.P.

Dr. James Garrett Kinley of Beebe has been elected to active membership in the American Academy of General Practice.

Dr. Miller Is Honored

Dr. Robert Dan Miller, II, Helena physician, was honored with a program and reception on February 13th in Helena. Dr. Miller recently began practicing in Helena with his father.

Dr. Harbison Attends Course

Dr. James D. Harbison of Lake Village recently attended the General Practice Review course at the University of Colorado School of Medicine at Denver, Colorado.

Burglars Hit Jonesboro Doctors' Offices

Burglars entered six Jonesboro doctors' offices during one night in January. The offices entered belonged to: Dr. Glenn Baker, Dr. Paul Stroud, Dr. Joe Ledbetter, Dr. H. C. Barnett, Dr. Bascom Raney, and Dr. Durwood Wisdom.

Legion of Merit Awarded Doctor

Dr. Harold G. Hutson, formerly of Carlisle, a U.S. Air Force surgeon stationed at Torrejon, Spain, has been decorated with the Spanish government's Legion of Merit. He was honored for outstanding medical care in helping save the lives of twelve Spanish military victims of an auto-truck accident.

Dr. Saltzman Elected Chairman

Dr. Ben N. Saltzman of Mountain Home was elected chairman of the Council on Rural Health of the American Medical Association at a recent council meeting. Dr. Saltzman has served on the council for six years, two years as a member of the Executive Committee and one year as vice chairman. He has been chairman of the Arkansas

Committee on Rural Health for the past fourteen years.

Dr. McKnight Heads Board

Dr. Ed McKnight of Brinkley has been elected president of the State Board of Health. He has served on the Board of Health for several years.

Luncheon in Honor of Dr. Blakely

Dr. R. M. Blakely of Little Rock was honored at a luncheon in February at the Little Rock Country Club. Dr. Blakely retired in 1965 after fifty-four years of practice.

First in Arkansas

Dr. O. J. T. Johnston of Batesville is believed to be the first doctor of medicine in Arkansas to qualify for social security benefits based on the earnings from his practice.

Crawford County Hospital Staff Officers

Dr. J. N. Thicksten of Alma has been named chief of staff of Crawford County Memorial Hospital in Van Buren. Other staff officers are: Dr. E. G. Hopkins, Van Buren, vice chief of staff; and Dr. Morton Wilson, Fort Smith, secretary.

NEW MEMBERS

DR. WILLARD G. BURKS is a new member of the Cross County Medical Society. A native of Monticello, Arkansas, he received his preliminary education from Arkansas A & M College and he was graduated from the University of Arkansas Medical School in 1963. He interned at St. Vincent's Infirmary in Little Rock and completed a surgery residency at the Little Rock Veterans Administration Hospital. Dr. Burks is a general practitioner with his office at 303 East Union in Wynne, Arkansas.

A new member of Ouachita County Medical

Society is DR. BILL BRANDON LIVINGSTON. He was born at Chidester, Arkansas, and received his pre-medical education from the University of Arkansas School of Pharmacy and from Southern State College. He was graduated from the University of Arkansas School of Medicine in 1964 and he interned at Westmoreland County General Hospital in Greensburg, Pennsylvania. He served in the U.S. Army from 1964 until 1966. Dr. Livingston's office address is 223 Jefferson Street in Camden, Arkansas. He is a general practitioner.



O B I T U A R Y

Dr. William Luther Newton

Dr. William L. Newton, 76, of Smackover died January 9, 1966. He was born in New Albany, Mississippi, on February 22, 1889. He was a graduate of Erskine College in Duewest, South Carolina, and a graduate of the University of Tennessee Medical School at Memphis. He interned at the Baptist Hospital in Memphis and served his residency at Riverside Hospital in Yonkers, New York. He served with the U.S. Army Medical Corps in World War I. He began the practice of medicine in Smackover in 1922 and continued his practice until ill health forced his retirement in 1958. Smackover paid tribute to him on "Dr. Newton Day" held February 21, 1956. He was a member of the Smackover American Legion Post, a Mason and a member of the Lions Club. He was a member of the Union County Medical Society, the Arkansas Medical Society and the American Medical Association. He was also a member of the First Methodist Church of Smackover. Dr. Newton was known state-wide for his checker playing; he was a four-time state checker champion and served as the first Arkansas State Checker Association President. He is survived by his widow and two sons.

Dr. Logan County McVay

Dr. L. C. McVay, 90-year-old retired Marion physician, died January 15, 1966. Dr. McVay was born in Paris and came to Marion in 1899 as a

school teacher and instructed in the Marion school. He began the study of medicine a short time later and in 1904 was graduated from the Memphis Hospital College where he was vice president of his class. He had postgraduate study in New York, Chicago, St. Louis, Kansas City, and New Orleans and set up his practice at Marion originally as a partner with the late Dr. L. F. Heintz. He was a charter member of the Marion Rotary Club and the Marion Masonic Lodge. During World War I he served as a member of the Crittenden County Draft Board. He is survived by two daughters.

Dr. Odell J. Kirksey

Dr. O. J. Kirksey of Mulberry died unexpectedly in his office on January 21, 1966, at the age of 71. He was born April 11, 1894, in Oenaville, Texas. At the age of one, his family moved to Dover, Arkansas, where he graduated from high school. He attended the Kansas City College of Medicine and Surgery, graduating in 1919. He began his practice in Mulberry in 1920 and delivered over 4,500 babies before retiring from obstetrics in 1960. He continued general practice until his death. He was a member of Crawford County Memorial Hospital Staff, Sparks Memorial Hospital Staff, Crawford County Medical Society, of which he was a past president, Arkansas Medical Society and the American Medical Association.

He was director of the Bank of Mulberry, charter twenty-five-year member Mulberry Lions International, Remy Lodge Number 487 and was written up in Marquis "Who's Who in the South and Southwest". He is survived by his widow, a daughter and a son.



BOOK REVIEWS

FUNDAMENTALS OF CLINICAL HEMATOLOGY, Byrd S. Leavell, M.D., and Oscar A. Thorup, Jr., M.D., Charlottesville, Virginia, pp. 597, illustrated, published by W. B. Saunders Company, 1966.

As the authors point out in the preface, disorders in the field of hematology seem to be moving at a very rapid pace. This text endeavors to condense the information in this field into a readable book of value to students, house staff, and practicing physicians. To a large measure, it attains this goal. It has a section on hematologic procedures which is well-written; in this, bone marrow is discussed; certain testing procedures such as blood bilirubin, fecal urobilinogen, etc. are also outlined together with a group of other valuable tests. The section on abnormalities of blood coagulation is in a general chapter on disorders of hemostasis, and the reviewer would really like this section to be expanded somewhat. The general section dealing with anemia is interesting and well-written. Chapters on bone marrow failure and bone disorders are likewise of considerable interest. This book is well-written and recommended as a text. AK



PROCEEDINGS OF SOCIETIES

Columbia

Dr. Charles W. Kelley of Magnolia was elected president of the Columbia County Medical Society in January. Other new officers include Dr. Byron Grimmatt of Waldo, vice president, and Dr. Charles Weber of Magnolia, secretary-treasurer.

Nevada

Dr. Glen Hairston has been elected president

of the Nevada County Medical Society for 1966. Other officers elected were: Dr. Charles Avery, vice president; Dr. Charles A. Hesterly; secretary and delegate; Dr. Blake Crow, alternate delegate.

Pulaski

A series of public information meetings to acquaint specific groups with certain medical problems and their solutions, sponsored by the Pulaski County Medical Society and the State Board of

Health, are being held at the University of Arkansas Medical Center. The first meeting was in January on "Poison and Poison Control". The January series was introduced by Storm Whaley, vice president for health sciences of the University. A session on medical quackery will be held in March.

Craighead-Poinsett

Dr. Donald Neblett, Jonesboro, has been elected president of the Craighead-Poinsett County Medical Society. Dr. George E. Mitchell is the new vice president and Dr. William L. Garner is secretary-treasurer.

TUBERCULOSIS



ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

POLONIUM²¹⁰ IN PULMONARY TISSUES OF CIGARETTE SMOKERS

When amounts of the radioactive isotope Po²¹⁰ were measured in lung tissue, higher concentrations were found in cigarette smokers than in nonsmokers. The evidence indicates that Po²¹⁰ may be a factor in the development of bronchial cancer in cigarette smokers.

Cigarette smoke contains trace amounts of an alpha-particle-emitting radioactive element, polonium²¹⁰ (Po²¹⁰), a naturally occurring daughter isotope of radium.²²⁶ In establishing whether this source of radiation exposure may be involved in the initiation of bronchial cancer in smokers, an important step is to show that pulmonary tissues of smokers, particularly certain regions of the bronchial epithelium, contain more of this element than those of nonsmokers.

The present investigation was undertaken to measure Po²¹⁰ concentrations in various pulmonary tissues of smokers and nonsmokers.

Lung specimens from 36 patients were studied. The specimens were either whole lungs obtained at autopsy or whole lungs or lobes surgically removed. Twenty-five of the patients were cigarette smokers, two were pipe smokers, one was a former cigarette smoker, and eight had never smoked.

Radioactivity was measured in gas-flow propor-

tional counters, with background rates of 0.2 to 0.6 counts per hour, and efficiencies of 51 per cent for polonium alpha particles.

The Po²¹⁰ concentrations found in lung parenchyma, peribronchial lymph nodes, and bronchial epithelium are expressed as picocuries (10⁻¹² curies, or 2.2 disintegrations per minute) of Po²¹⁰ per gram of wet tissue. The average concentration in peripheral parenchyma of current cigarette smokers was 0.0074 picocurie per gram as compared with 0.0016 for nonsmokers. Parenchymal concentrations in the two pipe smokers were similar to those of nonsmokers.

No correlation was found between concentrations in the lung parenchyma with total cigarettes smoked expressed as pack years (packages per day times number of years smoked), or with the age of the individual at death. However, there was a trend toward higher Po²¹⁰ levels in persons whose daily cigarette consumption was high.

Correlation with daily cigarette consumption, but not with total cigarettes smoked, is not unexpected because of the rapid clearance time for particulates by the lung and the relatively short half-life of the polonium isotope. When parenchymal Po²¹⁰ was studied as a function of time since cessation of smoking, a significant trend toward higher levels was evident only in those who had smoked up to 24 hours or less before death or surgery, but the scatter was great. The parenchymal Po²¹⁰ concentration in the one former cigarette smoker was very low (0.0015 pico-

JOHN B. LITTLE, M.D.; EDWARD P. RADFORD, JR., M.D.; H. LOUIS McCOMBS, M.D.; AND VILMA R. HUNT, B.D.S. *The New England Journal of Medicine*, December 16, 1965.

curie per gram).

Though the Po^{210} concentration in bronchial wall was similar to that present in lung parenchyma, it was about two orders of magnitude greater in bronchial epithelium than in parenchyma or lymph nodes. By far the highest concentrations were found in epithelium from segmental bifurcations were levels as high as 13.9 picocurie per gram were measured.

Measurable Po^{210} was also present in superficial mucus from all smokers. The concentrations ranged from 0.002 to 0.044 picocurie per gram of mucus, except in one case in which the concentration was much higher.

No correlation existed between number of cigarettes smoked, or time since the last cigarette, and the Po^{210} levels in bronchial epithelium. Similarly, there was no correlation between parenchymal and epithelial concentrations. In the two pipe smokers epithelial Po^{210} content was similar to that of cigarette smokers though the parenchymal concentrations were very low. Significant, though low, levels of activity were found in the lobar bronchus and one bifurcation of the single past smoker.

MODE OF ENTRY

"Unsupported" Po^{210} , or polonium not present with its long-lived parent, lead²¹⁰, may be taken into the body directly. Because its half-life is only 138 days, exposure to the isotope would have to be fairly continuous for a steady-state concentration to be reached in tissues. On the basis of preliminary measurements of lead, we believe that most of the Po^{210} in smokers' lungs comes from such unsupported Po^{210} present in cigarette smoke.

The relatively low Po^{210} concentration in lung parenchyma of cigarette smokers as compared to nonsmokers suggests that the majority of inhaled smoke particles is rapidly cleared from the lung. The distribution of polonium activity in the lung parenchyma of cigarette smokers suggests that either deposition or clearance of smoke is not uniform. Because deposition of cigarette smoke depends on diffusion, it should be relatively uniform within the lung. The lower polonium content in peripheral parenchyma probably reflects a more rapid clearance of smoke from peripheral lung tissue into the bronchial tree than from more central regions. Clearance of the majority of inhaled cigarette-smoke particles appears to be

rapid and to occur primarily by way of the bronchi.

NOT ONLY FACTOR

It is unlikely that alpha radiation is the sole factor responsible for bronchial tumors in smokers. Other agents in cigarette smoke may well contribute significantly as cocarcinogens, and the effect of a small radiation dose may be considerably magnified by their action.

Because of the uncertainty associated with dose estimates to bronchial stem cells in cigarette smokers, it is premature to assert that Po^{210} is or is not likely to be the major factor in induction of bronchial cancer in smokers. It is unlikely that there is a threshold dose below which no effect would be produced by alpha radiation; on this basis any dose, no matter how small, would have a certain probability for tumor induction. Finally, recent preliminary studies in animals indicate that alpha radiation may be a much more potent carcinogen in the production of certain skin cancers than more sparsely ionizing radiation.

As for the distribution of Po^{210} within the lung, the high levels found in segmental bifurcations are in regions where bronchial carcinomas frequently arise. The relatively low concentrations in lung parenchyma indicate that significant localization does not occur in the alveoli and, indeed, parenchymal tumors are relatively uncommon in cigarette smokers.

On the basis of the available evidence, it may be concluded that radiation from Po^{210} may be an important factor in the initiation of bronchial cancer in cigarette smokers.

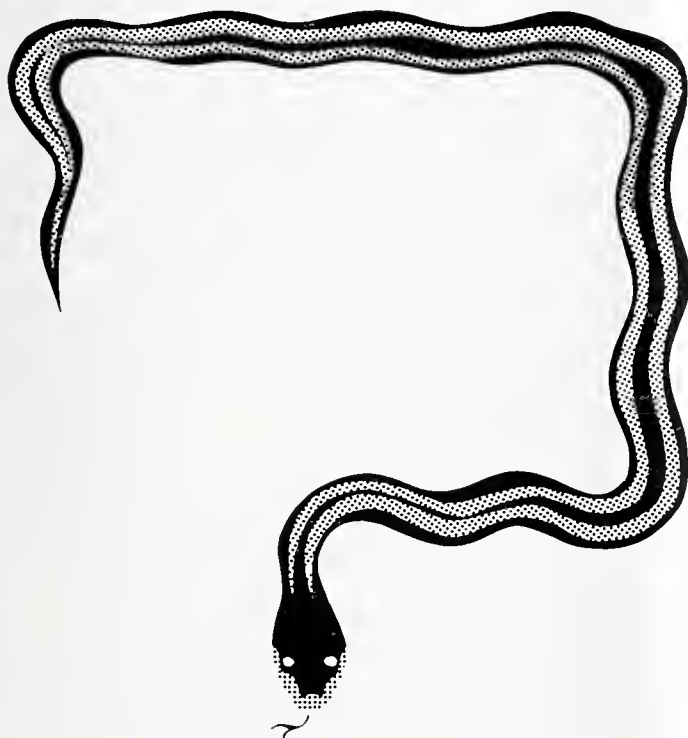


Acetazolamide in Phenobarbital Intoxication

W. N. Kelley et al (Parkland Memorial Hosp, Dallas) *Arch Intern Med* 117:64 (Jan) 1966

Acetazolamide was used in three patients with phenobarbital intoxication. The addition of acetazolamide to the accepted regimen of systemic alkalization and forced diuresis leads to an increased renal elimination of phenobarbital. This agent ensures a maximally alkaline urine, enhances urine flow, and tends to alleviate potential complications associated with alkali and osmotic diuretics alone. It is concluded that acetazolamide is a simple and effective adjuvant in the nondialytic management of patients intoxicated with phenobarbital.

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1. Riese, J.A.: Amer. J. Gastroent. 28:541 (Nov.) 1957

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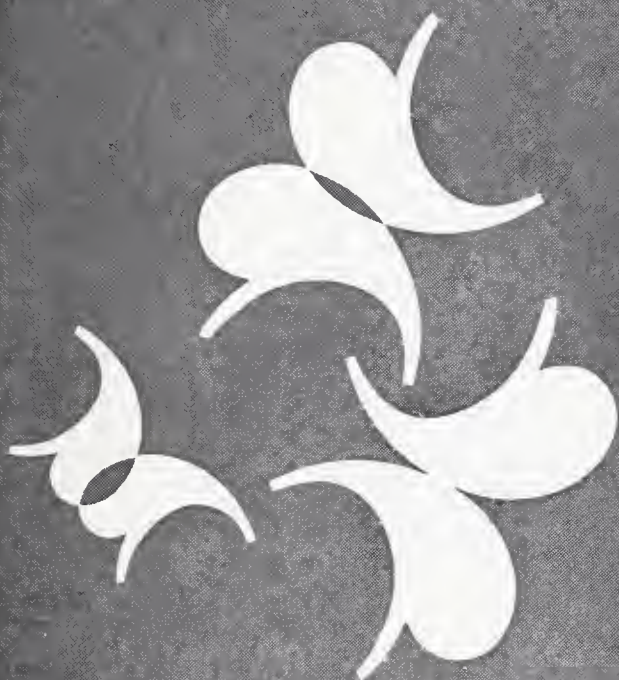
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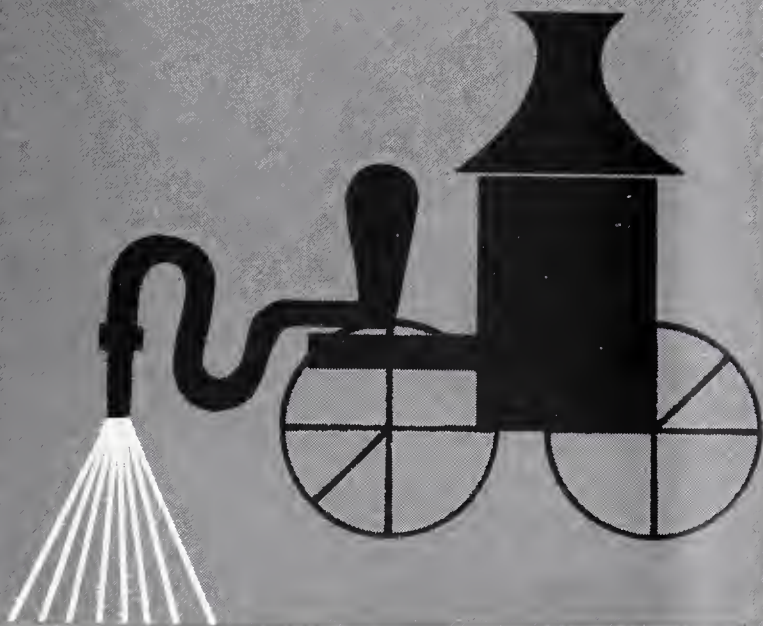
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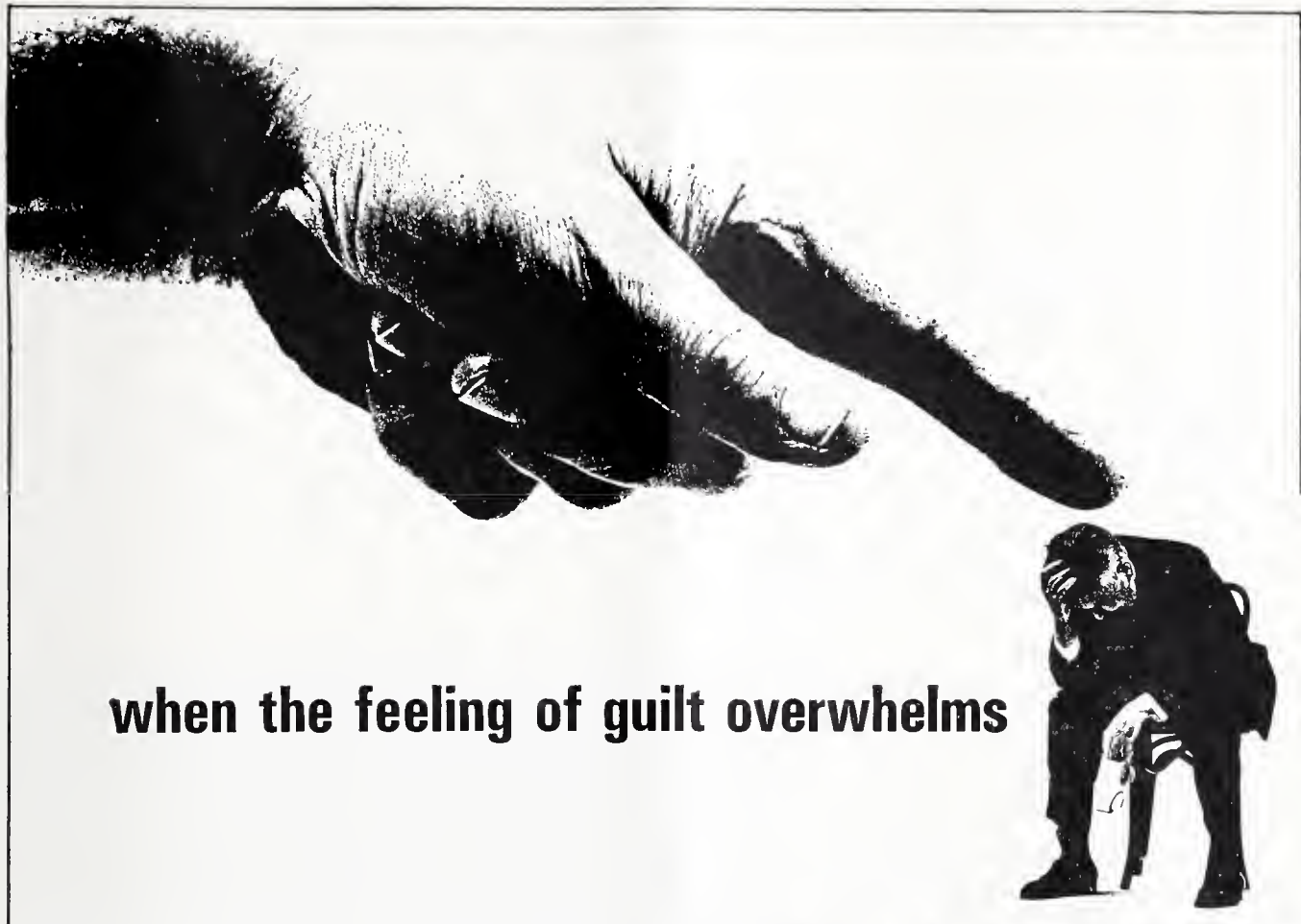
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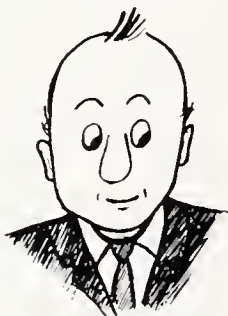
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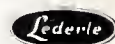
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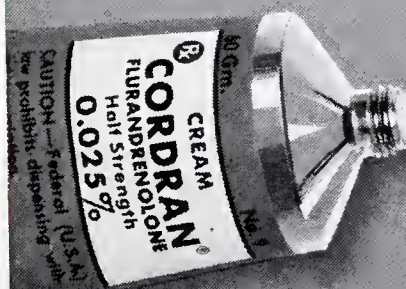
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Intensive Care of the Coronary Patient

Malcolm B. Pearce, M.D.*

Introduction

Despite extensive research, coronary artery disease remains the leading cause of death in the United States.¹ Although new knowledge has been obtained regarding this entity, the immediate mortality rates have remained essentially the same in the past two decades. Mortality rates with acute myocardial infarction are 15-40%.^{2,3,4} Excluding those cases in which there is extensive myocardial damage or myocardial rupture there remains a significant number of patients in whom sudden death occurs presumably due to mechanism change or electrical failure. This constitutes a group of patients who may well have hearts that are "too good to die".⁵ Certain patients have complicating factors which are associated with a grave prognosis. Chief among these are the occurrence of cardiogenic shock, congestive failure and arrhythmias.² If treatment is to be successful in these cases, the complications must be recognized and treated promptly.

Recent advances in electronic equipment for monitoring and treatment of heart patients have provided the necessary means by which potentially fatal complications accompanying acute myocardial infarction can be recognized and treated.

Since the development of the D. C. defibrillator, there has been a continual change in the concept of treatment of arrhythmias.⁶ In order to utilize equipment of this nature intensive care units for coronary patients have been established in several hospitals. Early results from these units have indicated a favorable effect on the mortality rate in acute myocardial infarction although results are inconclusive at present.

Certain principles of care and therapy are standard and accepted in the treatment of acute

myocardial infarction and will not be discussed here.

The coronary care unit, special electronic equipment, and certain complications of acute myocardial infarction will be discussed.

CORONARY CARE UNIT

Physical Arrangement:

A coronary care unit should be situated in a quiet, but convenient area of the hospital. There should be ready access to materials from central supply. The size of the unit can be variable depending upon the individual hospital needs. Generally a space of approximately 11'x12' in a separate enclosure should be available for the individual patient. Each of these spaces should be arranged around a centrally located nursing station. Suggestions of 1,100 square feet have been made for a five patient unit.^{1,7} (Figure 1)

Equipment:

Each patient room should be equipped with a monitoring device displaying a continuous electrocardiographic signal on an oscilloscope. This system should also contain an audio or visual alarm system and electrical pacemaker to stimulate the heart. Finally, the monitor should be connected to a central monitor and control panel transmitting data to the nursing station. (Figure 2)

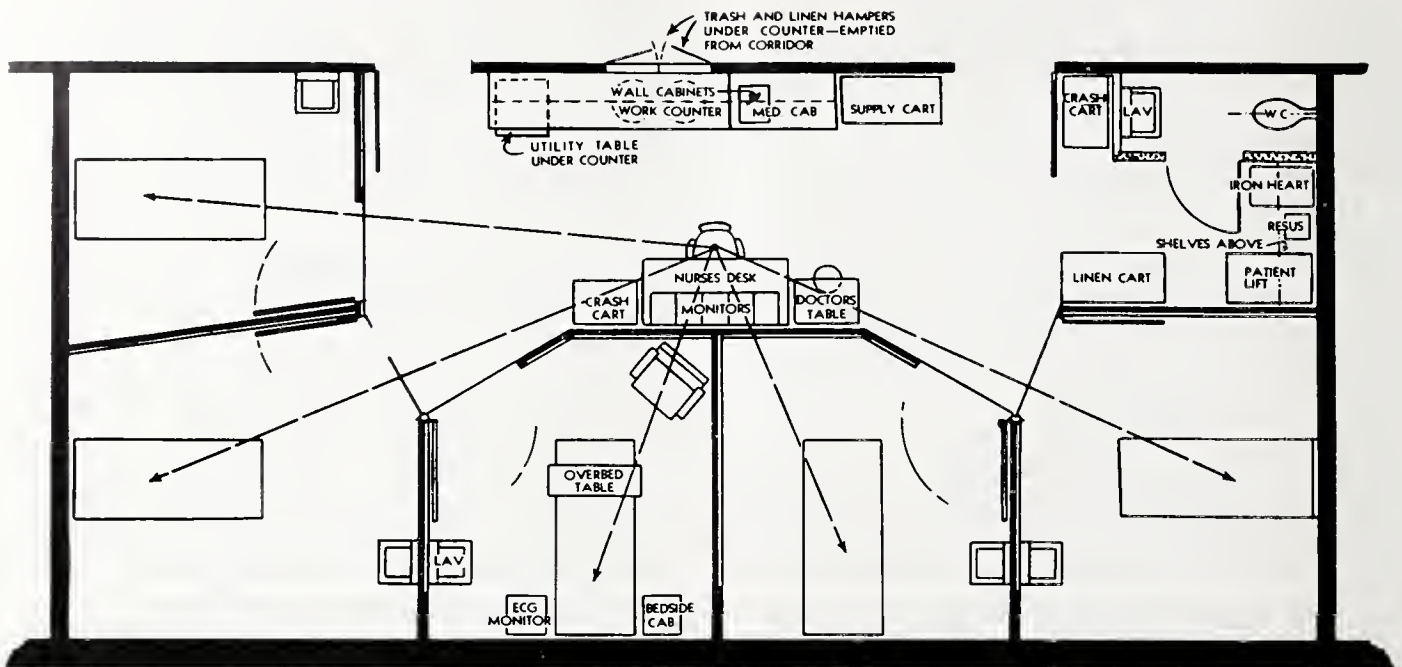
Equipment necessary for cardiac resuscitation should be available either in the patient's room or on a crash cart located near the nurses station. At least two external defibrillators should be available for use in the care unit, one of which may be stationed in another part of the hospital. Equipment for maintenance of airways as well as other supportive equipment should be available.^{1,8} (Figure 3)

Staff:

A well trained staff is a must for the coronary care unit. The unit should be in charge of a cardiologist who would be responsible for admis-

*Senior Trainee in Cardiology. Supported in part by N.I.H. Grant No. HTS 5333. 3214 West Markham Street, Little Rock, Arkansas.

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FIGURE 1

Proposed Arrangement for a Five Bed Coronary Care Unit. (Reprinted from U.S. Department of Health, Education and Welfare publication No. 1250)

ELECTRONIC ECG MONITORING EQUIPMENT

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- CONTINUOUS ELECTROCARDIOGRAPHIC (ECG) SIGNAL ON OSCILLOSCOPE
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- ELECTRICAL PACEMAKER TO STIMULATE HEART.
- FROM EACH BEDSIDE MONITOR (MOUNTED ON WALL OVER BED) A CENTRAL MONITOR AND CONTROL PANEL TRANSMITS DATA TO THE NURSING STATION.

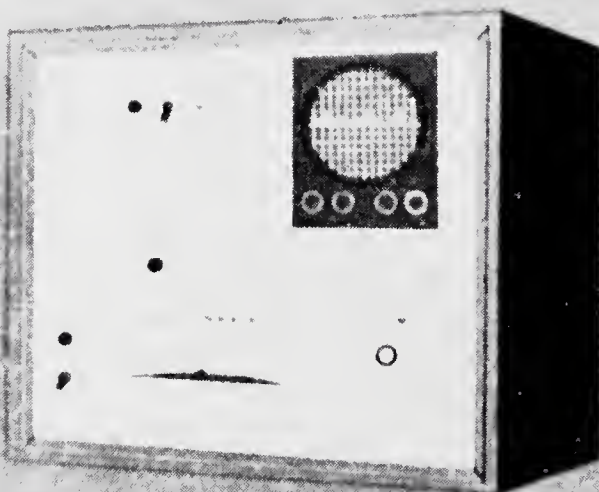


FIGURE 2

Electrical Monitoring Equipment for the Coronary Care Unit. (Reprinted from U.S. Department of Health, Education and Welfare publication No. 1250)

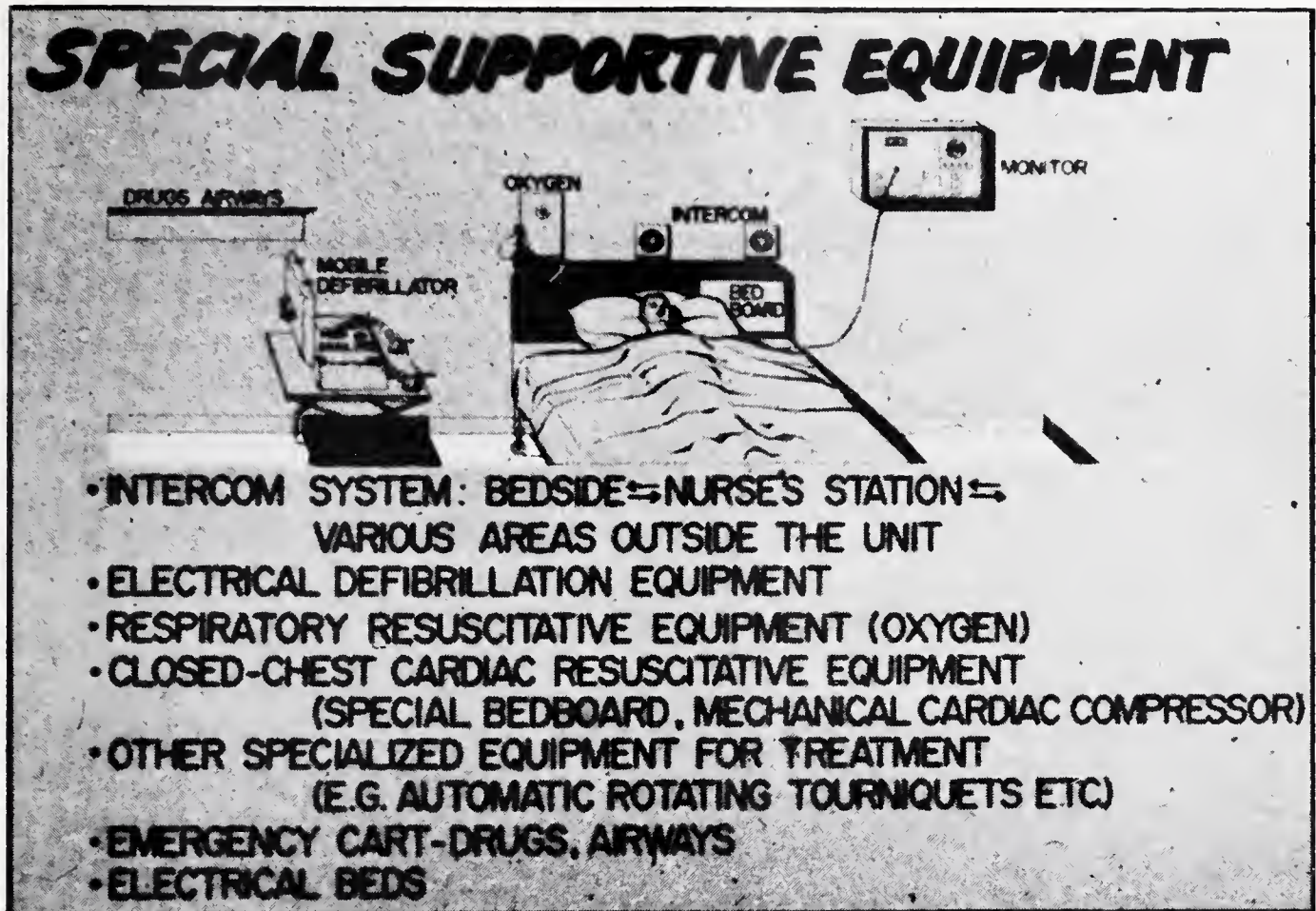


FIGURE 3

Supportive Equipment Needed in the Coronary Care Unit. (Reprinted from U.S. Department of Health, Education and Welfare publication No. 1250)

sions, discharges, and training of nurses. The nursing staff of the coronary care unit must be able to recognize complications and to institute emergency measures, therefore additional training is necessary.

A cardiac resuscitation team must be at the immediate disposal of the coronary care unit. The team should consist of a cardiologist, anesthesiologist, and surgeon, as well as supportive personnel. Well trained, interested personnel are necessary in order to maintain effective coronary care unit.^{1,7}

SPECIFIC PROBLEMS IN MYOCARDIAL INFARCTION

Justification of the coronary care unit depends upon the occurrence of treatable complications of acute myocardial infarction which would be life threatening without prompt recognition and treatment. It is known that the occurrence of sudden death following a myocardial infarction is not necessarily related to the extent of myocardial damage.¹ Autopsy studies have failed to

show a discernible cause of death in 50-70% of patients dying 24-48 hours after a myocardial infarction.¹ In this group of patients arrhythmias must play an important role. Continual monitoring of patients with acute myocardial infarction has shown the incidence of arrhythmias to be approximately 70%.^{9,10} Patients dying have been noted to have atrial arrest or a ventricular arrhythmia as the preterminal arrhythmia.^{4,9} A coronary care unit will only be effective if proper management of the complications of acute myocardial infarction is carried out. As stated previously, the well accepted and established therapy of myocardial infarction will not be repeated, but the purpose of this discussion is to relate some of the newer concepts in therapy of complications arising from acute myocardial infarction.

Treatment of Arrhythmias:

When an ectopic mechanism drives the ventricles at a rate of 160/min. there is a resultant decrease in cardiac output and coronary blood flow. This creates a situation which must be cor-

rected as soon as possible. Drug therapy of arrhythmias may be disappointing in that the commonly used drugs such as procaine amide, quinidine and digitalis glycosides usually require time-consuming titration of the individual patient, may fail after a long trial, and possess toxic properties. In some cases, emergencies exist that demand speedier correction than can be obtained by drug therapy.

Cardioversion:

Lown introduced the concept of conversion of arrhythmias by development of an electrical device utilizing the principle of synchronized capacitor discharge. This device has proven relatively effective and safe in the treatment of both atrial and ventricular arrhythmias.⁶

This instrument produces a direct current which is measured in energy units, or watt-seconds, rather than volts. The amount of watt-seconds, of electrical energy delivered to the patient is controlled by the operator of the device. Delivery of electrical current to the heart corresponding to the time immediately preceding the T wave may result in ventricular fibrillation. The cardioverter prevents this by utilizing a synchronizing device whereby its discharge of electrical energy is triggered by the R wave of the electrocardiogram. Ordinarily the cardioverter is adjusted to deliver the electrical current during the down stroke of the R wave.

Cardioversion should be carried out in the operating room with the patient under short-acting barbiturate anesthesia.^{10,11} The patient's electrocardiogram should be monitored by both standard electrocardiograph machine and the monitor built into the defibrillator. A generous amount of paste should be applied to the electrode paddles in order to avoid electrical burns. Originally electrode paddles were applied anteriorly in the third intercostal space to the right of the sternum and in the fifth intercostal space at the midaxillary line. Recent evidence indicates that moving the midaxillary paddle to the infrascapular area posteriorly may be desirable since cardioversion can usually be accomplished at a lower expenditure of energy.¹⁰

The amount of electrical energy required for conversion of a cardiac arrhythmia is variable. Generally the defibrillator is set to deliver 50-100 watt-seconds during the initial countershock. If the first attempt is not successful, then the

amount of energy may be increased by an increment of 50-100 watt-seconds with successive countershocks to a maximum of 400 watt-seconds. After cardioversion, the patient should be maintained on the appropriate drug therapy in order to prevent recurrent arrhythmia.¹⁰ Cardioversion may unmask arrhythmia due to over digitalization therefore digitalis should be used with caution prior to cardioversion.

COMPLETE HEART BLOCK

Complete heart block occurring as a sequel to acute myocardial infarction is an ominous complication associated with an increase in mortality.² With ventricular rates in the range of 30-35 per minute, there is a fall in cardiac output since compensation for the slow rate by an increase in stroke volume is inadequate. The decrease in cardiac output may then fail to maintain adequate blood flow and Adam-Stokes episodes may result. It is necessary to increase the heart rate to increase cardiac output in these patients.

Intracardiac Pacing:

Electrical stimulation of the inner cardiac surface by use of an intracardiac bipolar electrode catheter has been shown to be effective in increasing the heart rate in patients with complete heart block.¹² Under fluoroscopic control a bipolar electrode catheter is introduced through an external jugular cutdown to a point just below the pulmonary valve in the right ventricular outflow tract. The lead wires of the catheter are then attached to an external pacer which is taped to the patient's chest. The rate and voltage of the external pacemaker is adjusted to pace at a rate of 60-70/min. Voltage utilized is the lowest at which ventricular capture occurs. The right ventricular outflow tract may be relatively insensitive to electrical stimulation and the catheter may need to be placed in the apex of the right ventricle. Utilizing a platinum tipped unipolar electrode, a percutaneous technic is available which eliminates the need for venous cutdown and fluoroscopic control.¹³ With careful attention to avoid infection the pacer catheter may be left in place for two to three weeks as needed.

Complete heart block complicating acute myocardial infarction may be transient. Under electrocardiographic control, the external pacemaker may be turned off in order to determine if the patient's own cardiac mechanism will be able to sustain an adequate rate. If the heart block proves

to be persistent it will be necessary to put in a permanent pacemaker. Since thoracotomy is inadvisable in a patient with acute myocardial infarction, a permanent type of catheter pacemaker may be used.¹⁴

CARDIAC ARREST

Cardiac arrest is the failure of the cardiovascular system to maintain circulation sufficient to sustain life. It is a grave emergency, often occurring suddenly without prior warning, requiring prompt attention by well trained personnel if successful resuscitation is to be accomplished.¹⁵ The circulation may be inadequate due to ventricular asystole, ventricular fibrillation or total peripheral vascular collapse.^{15,16} Regardless of the nature of the arrest, there are certain principles which should be followed during resuscitation.

Detection of Arrest:

The determination that a cardiac arrest exists will generally be made by a nurse. It is her responsibility to sound the alarm and to begin resuscitative measures while help is arriving.

Ventilatory Resuscitation:

Establishment of adequate ventilation to the lungs is of extreme importance in cardiac resuscitation. This can usually be established by the insertion of an oral airway followed by respiratory support using the mouth to mouth technic or a bag and face mask. Tracheal intubation provides the most adequate ventilation, but may not be practical during the preliminary resuscitation attempt. Regardless of the type of ventilatory resuscitation employed, its effectiveness should be checked by noting upward movements of the patient's chest and detecting movement of air by auscultation.¹⁶

Circulatory Resuscitation:

Immediately upon establishment of ventilation, closed chest cardiac massage as described by Kouwenhoven, Jude, and Knickerbocker should be instituted. Its effectiveness is indicated by the presence of a pulse with each compression, the presence of pupillary constriction, the improvement of color and the occurrence of spontaneous movements and respirations.^{16,17}

During this part of the procedure, a member of the resuscitation team should perform a venous cutdown and an intravenous injection of a cardio-tonicvasopressor substance such as epinephrine or ephedrine should be accomplished. Injection of these substances may be directly intracardiac.¹⁶

Treatment of Acidosis:

Although ventilatory and circulatory support is sufficient to prevent irreversible cell death, acidosis may result during external cardiac massage. Ventricular defibrillation using countershock is more difficult when acidosis is present. Therefore the use of 44.6 meq/liters of sodium biocarbonate for each six to eight minutes of closed chest massage is recommended.¹⁶

Nature of Arrest:

Further resuscitation measures will depend to some extent on the mechanism causing insufficient cardiac output. This may be determined by simply noting the mechanism on an oscilloscope of a monitor or by obtaining a single lead of an electrocardiograph. In the presence of a sinus rhythm treatment would be directed toward the use of drugs to maintain blood pressure, to stimulate the heart, and to combat acidosis. Patients showing ventricular asystole should be given a trial of external pacing and cardiac stimulants. If ventricular fibrillation is present external countershock should be used.¹⁶

Countershock:

Following the establishment of ventilatory and circulatory resuscitation those patients with ventricular fibrillation should receive external countershock. Using the D. C. defibrillator the patient should initially be given a 100-200 watt-second countershock. If this is unsuccessful successive increases in the electrical energy given may be increased with successive countershocks. If repeated countershocks are given there should be a pause between each attempt in order that ventilatory and circulatory resuscitation can be maintained.¹⁶

Care of the Resuscitated Patient:

Following resuscitation, intensive care of the patient must be maintained. Appropriate drug therapy to maintain blood pressure, prevent recurrent arrhythmia and to correct acidosis should be continued. Monitoring of the patient must be continued for a period of several days to insure that his condition is stable.

RESULTS OF CORONARY CARE UNITS

Although not adequate for statistical evaluation, preliminary results from coronary care units indicate encouraging trends.

Coronary Care Unit—Bethany Hospital, Kansas City, Kansas:

One hundred and fifty patients have been admitted to this unit during a 26 month period.

The mortality rate for these cases was 16.7%. Serious complications occurred 74 times and 48 of these episodes were successfully treated. Seventeen patients had one or more episodes of cardiac arrest and ten of these patients survived to leave the hospital. Successful termination of ventricular tachycardia was accomplished in each of 14 episodes. The results obtained for therapy of congestive failure were good while the occurrence of shock continued to carry a high mortality.^{1,15}
Coronary Care Unit—Presbyterian Hospital, Philadelphia, Pennsylvania:

During an 18 month period, 141 patients were treated on this unit with a mortality rate of 20%. The mortality rate of acute myocardial infarction on the wards of Presbyterian was 28% during the same period of time. Eighty-three episodes of a total of 108 episodes of serious complications were treated successfully. Cardiac arrest occurred in 10 patients. Four of these survived to leave the hospital. All episodes of ventricular tachycardia were successfully terminated. Treatment of congestive failure was 80% successful. As in the Bethany series the patients with shock had a poor prognosis.¹

Conclusion:

Patients with acute myocardial infarction have a high incidence of arrhythmias. Arrhythmias are best managed by prompt recognition and treatment. Hospitalizing the patient with acute myocardial infarction in a coronary care unit results in early detection of arrhythmia.

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Thickness of Glomerular Basement Membranes

G. Osawa, P. Kimmelstiel, and V. Seiling (Marquette University Medical School, Milwaukee, Wis) *Amer J Clin Path* 45:7 (Jan) 1966

The width of glomerular basement membranes was measured in 21 cases without evidence of renal disease, including percutaneous renal biopsies of seven normal individuals submitting to detailed clinical and laboratory studies. Tangen-

tial sections in areas close to the mesangium were excluded from measurements. Over 7,000 measurements revealed significant variations in thickness, the mean width being 3,442 Å with a range of 2,300 to 4,500 Å, but exceeding 5,000 Å in two cases. The standard deviation was 1,090 Å; these values are comparable to those previously reported.

Roentgenologic Contrast Studies in Vascular Disease

Hillier L. Baker, Jr., M.D.*

Roentgenographic visualization of components of the vascular tree was first accomplished only 3 months after Röntgen's discovery of x-rays in 1895. It has only been in the past decade, however, that such visualization has become commonplace. This explosive development of angiography has come as the result of advances in surgical and medical techniques which permit treatment of disease processes previously considered to be untreatable, or as the result of the discovery of new disease processes whose existence can be most accurately demonstrated by angiographic means. Therefore, all physicians should know something about the angiographic techniques used in diagnosis and management and about the pathologic conditions for which angiography is indicated. Each physician undoubtedly will see patients with at least one of these conditions during this year.

The diagnostic value of any angiographic examination depends on three factors: (1) the choice of the technique of examination; (2) the technical quality of the films obtained; and (3) the training and experience of the person who interprets the films. If optimal results are to be obtained, the clinician, the surgeon, the radiologist, and the anesthesiologist must attain a close and effective cooperative working relationship. Each must be conversant with the patient's clinical problem, as well as being aware of the needs and objectives of the other members of the group. When this type of relationship exists, the success of the examination is virtually ensured.

Methods

All techniques for the opacification of various portions of the vascular system involve the introduction of contrast medium into the system by any of three major methods: (1) direct percutaneous needle puncture of a particular vessel, (2) cannulation of vessels with a catheter introduced at a remote point, and (3) more generalized opacification by intravenous injection of a large bolus of medium. Of the three methods, the last is the least useful and will not be considered further in

this discussion.

Direct percutaneous needle puncture is employed when the vessel to be studied is fairly superficial in location, as are the carotid, subclavian, axillary, brachial, and femoral arteries, or when it is of large size, as is the abdominal aorta. The needle point can be placed in the lumen of these vessels and the contrast medium can be injected, with the flow of blood or counter to it, to opacify adjacent structures. Local anesthesia is usually sufficient. The needle should be of the smallest possible gauge through which an adequate amount of contrast medium can be injected rapidly, either by hand or with a mechanical injector. The technique is safe and can be accomplished rapidly. Its major drawback is that the arterial wall must be traumatized in the placement of the needle, and, if this wall is diseased, complications may result.

The introduction of a catheter into the arterial system by the Seldinger percutaneous technique¹ has opened new vistas in the arteriographic study of vascular disease. With this method the thoracic and abdominal parts of the aorta, as well as any of the smaller arterial branches arising from them, can be collectively or selectively opacified. Local anesthesia may be used, but not infrequently general anesthesia is preferable because the necessary injection of large volumes of contrast medium is disagreeable to the patient. Insertion of the catheter via the femoral, brachial, or axillary artery requires that these vessels are free of disease and that the operator have some skill in the conduct of the examination. If these conditions are met, the procedure is quite safe.

Good angiography demands that high-grade roentgenographic techniques be employed. It is foolish to subject a patient to the discomfort and hazards of such a procedure if the resulting films are of poor technical quality and not diagnostic. Satisfactory equipment should include a generator with adequate capacity, as well as rapid film-changing cameras which will permit continuous rapid filming from the start of injection of the contrast substance until the vessel or organ being studied is no longer opaque.

*Mayo Clinic and Mayo Foundation; Section of Roentgenology, Rochester, Minnesota.

Read at the meeting of the Arkansas Medical Society, Little Rock, April 24 to 28, 1965.

With the proper angiographic and roentgenographic techniques, a variety of vascular diseases can be studied profitably for the purpose of diagnosis and as a preliminary to surgical treatment.

Diagnosis of Specific Conditions

Occlusive Vascular Disease.—In the past several years, the study of the pathologic anatomy of arterial disease in living patients by means of angiography has dispelled previous notions that atheromatous involvement was always diffuse. It has been found, on the contrary, that atherosclerotic lesions often are distributed unevenly and that occlusive processes may be limited to relatively short arterial segments. This concept is of great practical importance from the thera-

peutic standpoint because the patient with localized segmental occlusive disease can be benefitted most by surgical corrective procedures. The selection of patients to receive these benefits will depend on the evaluation of symptoms, the degree of disability, and the demonstration of the extent and location of the lesions by means of angiography.

The aorta and its major branches are commonly affected by chronic occlusive processes. The presence of this condition is usually manifested by claudication, the location of which suggests the site of the occlusion and helps determine the type of angiographic procedure which will be of most diagnostic value. Thus, calf claudication would

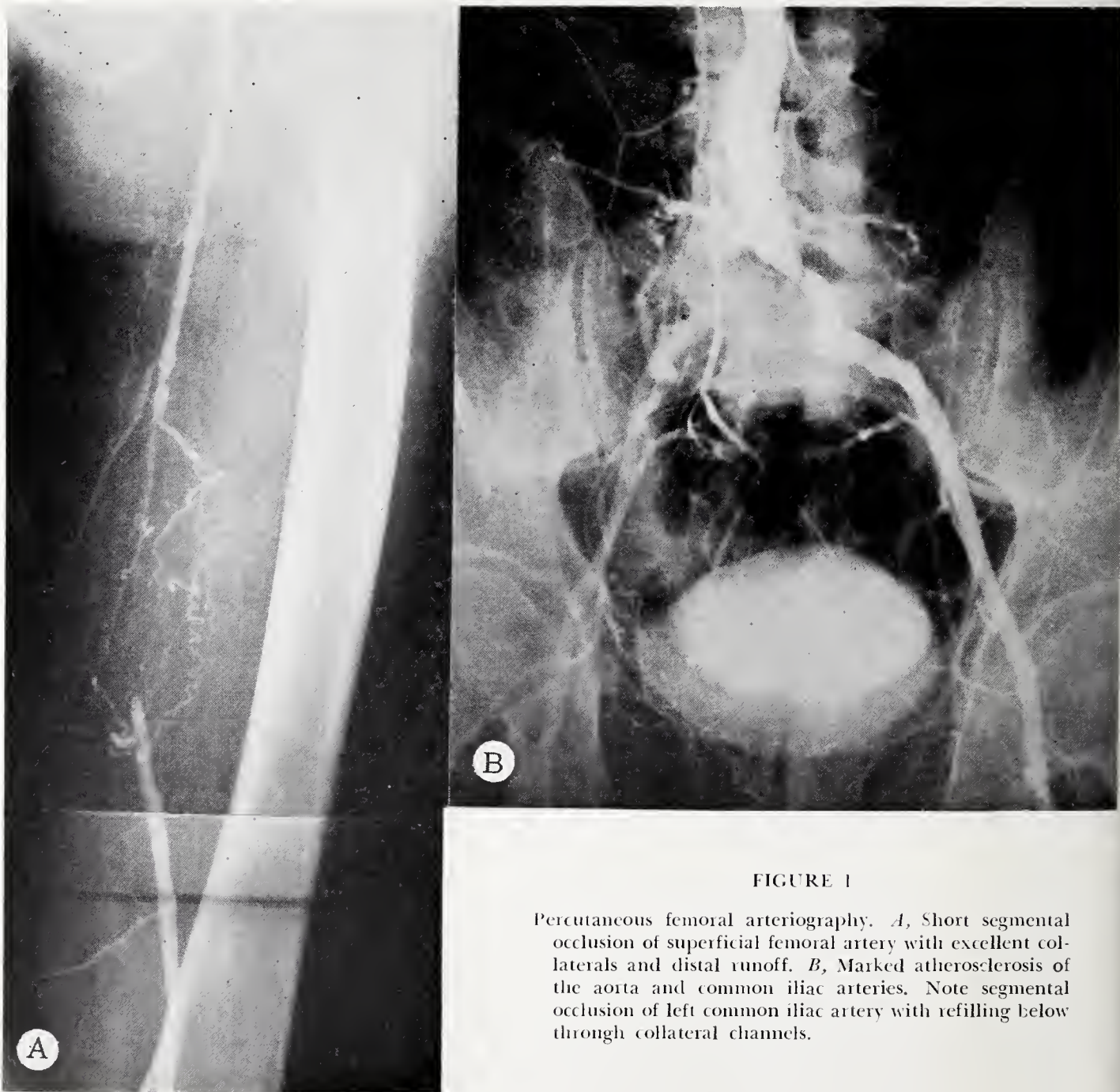


FIGURE 1

Percutaneous femoral arteriography. *A*, Short segmental occlusion of superficial femoral artery with excellent collaterals and distal runoff. *B*, Marked atherosclerosis of the aorta and common iliac arteries. Note segmental occlusion of left common iliac artery with refilling below through collateral channels.

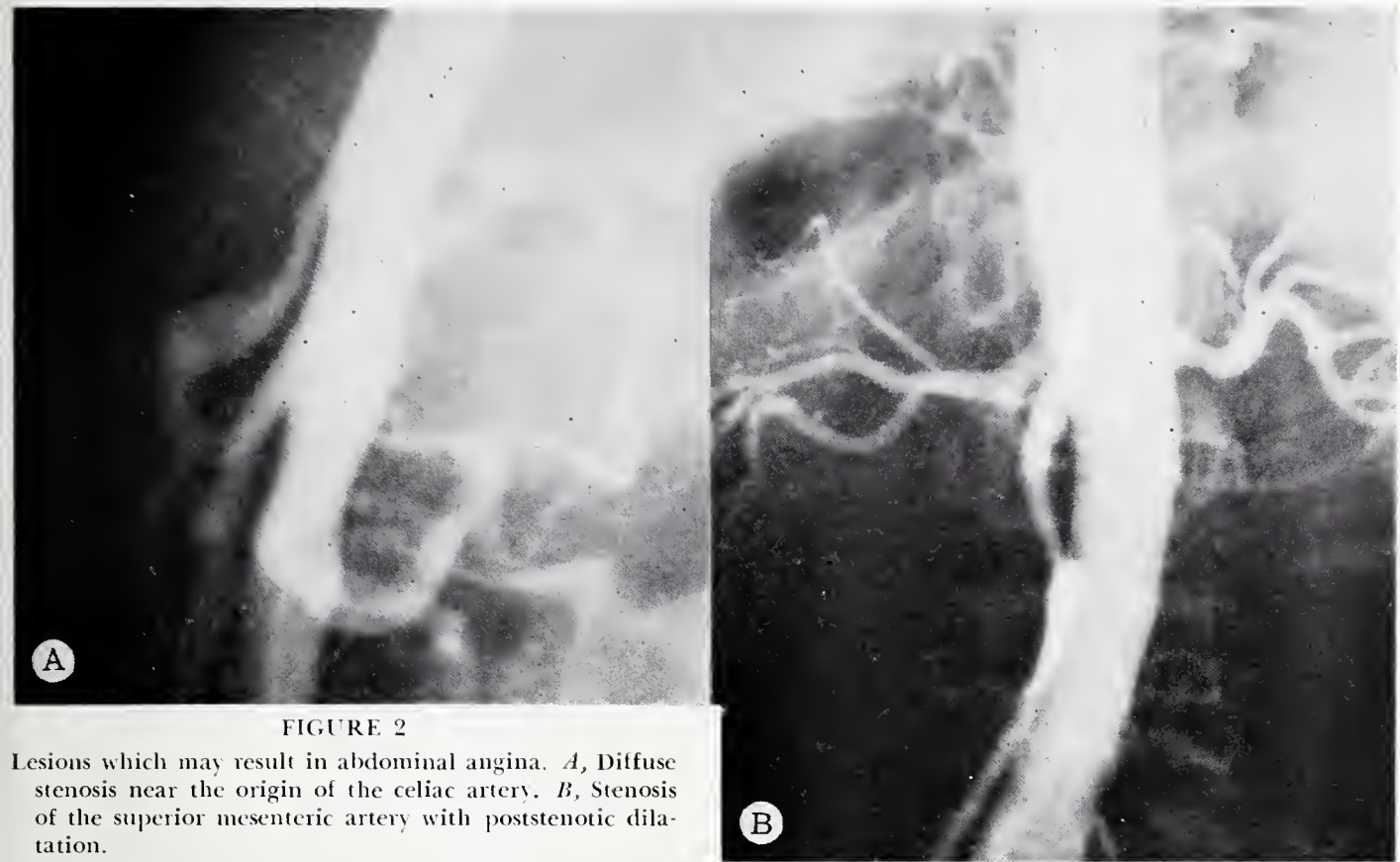


FIGURE 2

Lesions which may result in abdominal angina. *A*, Diffuse stenosis near the origin of the celiac artery. *B*, Stenosis of the superior mesenteric artery with poststenotic dilatation.

indicate involvement of the femoral arteries, which can be demonstrated to best advantage by percutaneous femoral arteriography (Fig. 1*A*). Claudication in the lower part of the back or in the buttocks, hips, or thighs occurs with aortoiliac occlusion which can be shown most adequately via translumbar aortography (Fig. 1*B*) or catheterization of the aorta from the axillary artery.

Abdominal claudication or angina can result from stenosis or occlusion of the celiac or superior mesenteric artery. Retrograde catheter aortography or selective catheterization of either of these vessels will demonstrate the changes to best advantage (Fig. 2).

Stenosing lesions also may involve the brachiocephalic vessels in the superior mediastinum and neck. They betray their presence by the production of the syndromes associated with insufficiency of the basilar and carotid arterial systems. These syndromes were described by Millikan and Siekert^{2,3} and consist of recurring "stroke-like" episodes from which the patient recovers. They are of grave portent and should stimulate further diagnostic investigation so that anticoagulant or surgical therapy, or both, may be instituted before irreversible cerebral damage occurs. Absence or diminution of the carotid and subclavian pulsa-

tions in the neck is often detectable in these patients. Auscultation over these vessels to detect bruits, and the study of the retinal and brachial arterial pressures bilaterally may also aid in the discovery of stenotic lesions. Eventually, if operation is contemplated, the exact sites and sizes of the lesions must be demonstrated. Retrograde injections of contrast medium into both brachial arteries, together with injection into the left common carotid artery, will show all of the vessels in question (Fig. 3). On occasion, injection of contrast medium into the aortic arch through a catheter inserted into the axillary or femoral artery may be necessary to demonstrate lesions of the proximal brachiocephalic vessels (Fig. 4).

Aneurysms.—Most aneurysms found in man, regardless of their cause, may be diagnosed by means of careful physical examination or on ordinary roentgenograms without recourse to angiography. However, because of their small size or inaccessibility, some of these lesions may not be found until they are made radiopaque by contrast medium.

The aorta is by far the most common site of aneurysmal dilatation and the great majority of aortic aneurysms found currently are of arteriosclerotic origin. The discovery of an aortic aneurysm should not be regarded lightly; more than

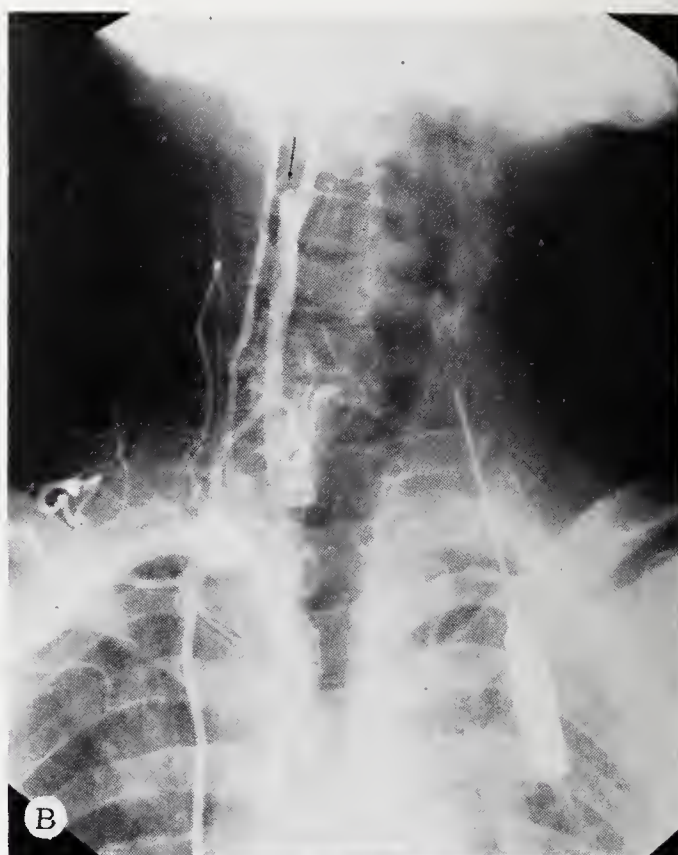
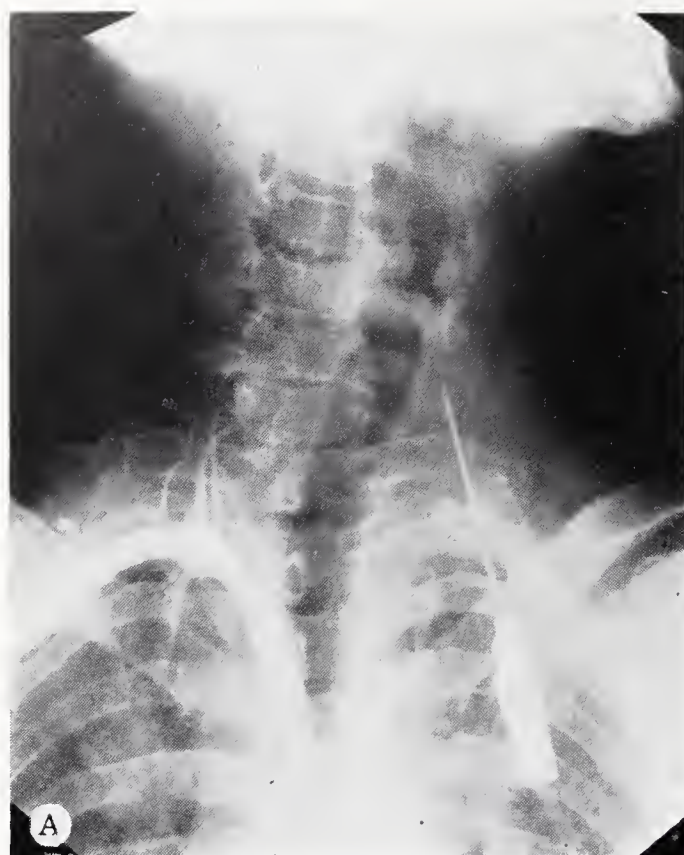


FIGURE 3

A, Right brachial arteriogram, showing stenosis of the subclavian artery and small vertebral artery. *B*, Same examination 0.66 second later. Occlusion of right internal carotid arteries well shown. *C*, Left brachial arteriogram demonstrates large normal left vertebral artery. *D*, Left carotid angiogram, showing moderate atheromatous stenosis at origin of internal carotid artery.

80% of patients with such lesions die within 5 years if untreated and within a year of diagnosis if symptoms are present. The most prominent symptom is diffuse pain, possibly intermittent, either in the thorax or in the abdomen. A pal-

pable mass is sometimes present. If the aneurysm ruptures, shock occurs.

Thoracic aortography is of great value in the differentiation of thoracic aortic aneurysms from nonvascular mediastinal masses located adjacent

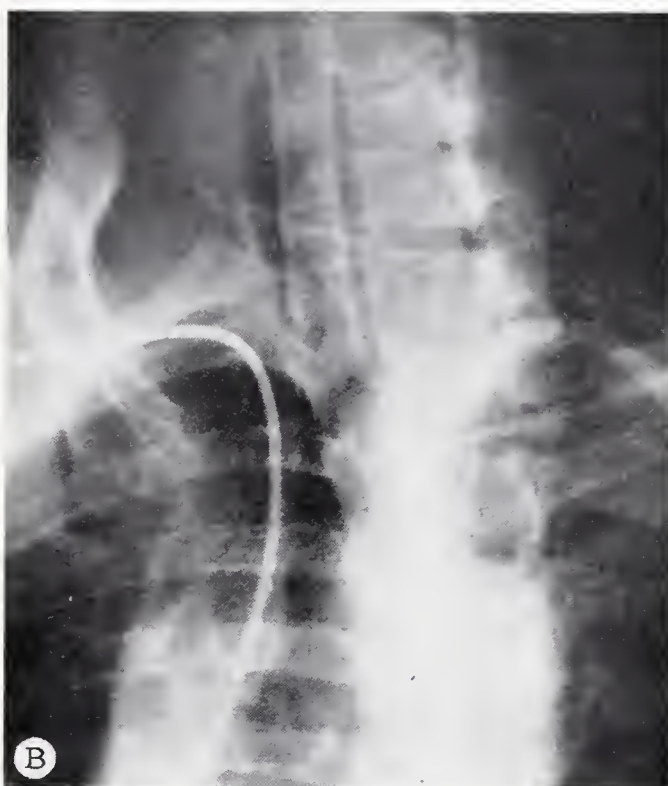
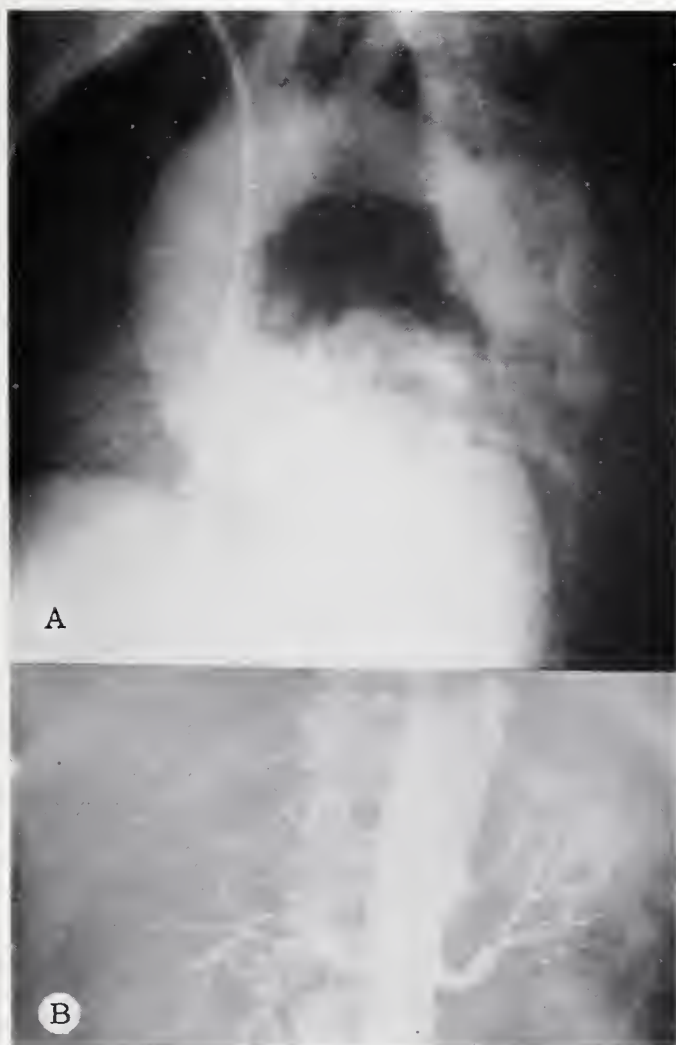


FIGURE 4

Thoracic aortogram. *A*, The left subclavian artery is occluded near its origin. *B*, Same examination 2.33 seconds later. Retrograde filling of the left subclavian artery via

the left vertebral artery; so-called subclavian steal syndrome.



to and inseparable from the aorta. The same examination or angiocardiology with injection into the right atrium may prove lifesaving in the early diagnosis of dissecting aneurysm. The extent of the aortic hematoma can be determined and the site of dissection often can be detected. Increased thickness of the aortic wall blending into normal aortic wall above and below is the characteristic finding in this condition (Fig. 5).

Aneurysms of the abdominal branches of the aorta are more common than has been previously thought. The splenic, hepatic, and renal arteries are involved most frequently, but any vessel may be affected. Symptoms are nonspecific but seem to be somewhat related to the site of the lesion. Vague abdominal pain is by far the most frequent complaint. Severe gastrointestinal bleeding may occur with hepatic and mesenteric arterial aneurysms, and hypertension may occur with those of the renal artery. All are likely to rupture and for this reason alone their diagnosis is important.

FIGURE 5

A, Venous angiogram. Dissecting aneurysm of the thoracic aorta. The site of dissection is well shown. *B*, Abdominal aortogram in same case. Lower end of aortic dissection is shown by retrograde injection.

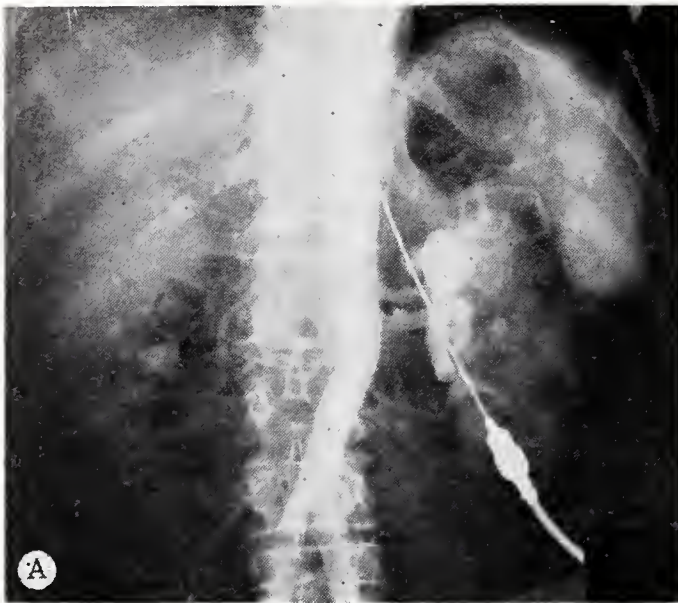


FIGURE 6

A, Translumbar aortogram. Large saccular aneurysm of the splenic artery. *B*, Transfemoral catheter aortogram. Aneurysm of right renal artery.

In many instances the diagnosis may be suggested by incidental observation, in roentgenograms of the abdomen or spinal column, of calcific deposits in the wall of the aneurysm. This is especially true of splenic and hepatic arterial aneurysms, which frequently calcify. Aneurysms of the renal arteries calcify less often, and the discovery of recently occurring hypertension may be the only clue to their presence. Aortography, by any means, is a sure method for arriving at the diagnosis of any of these lesions (Fig. 6).

Arteriovenous Malformation. — Arteriovenous

malformations may occur anywhere in the body. They are most often symptomatic when they arise in the central nervous system or in the lung. Lesions in these sites are usually of congenital origin whereas many of those found elsewhere in the body result from trauma.

The symptoms and signs produced may be

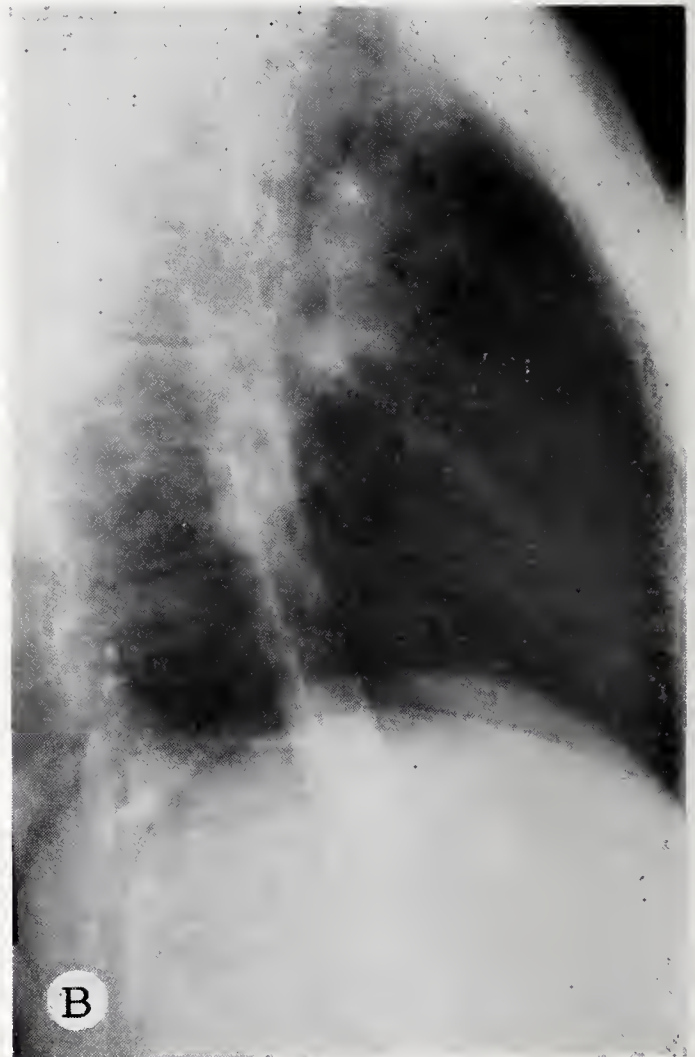
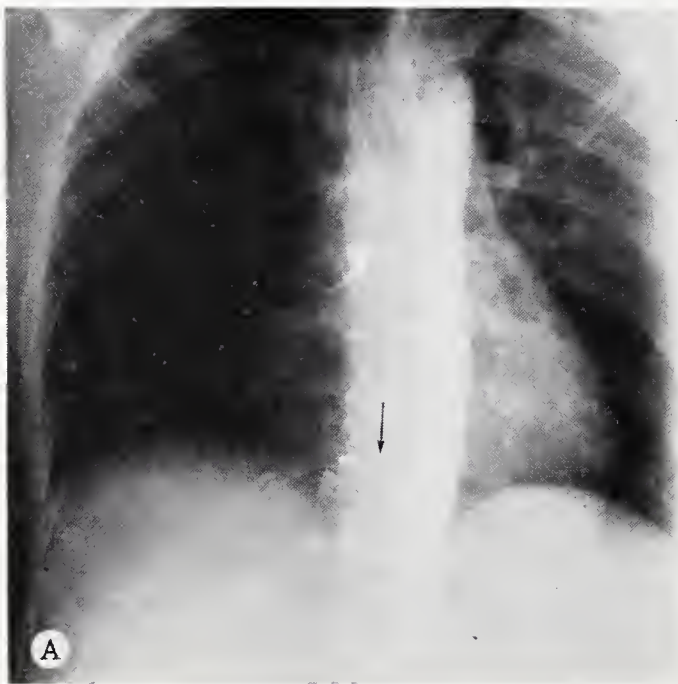


FIGURE 7

Transfemoral catheter aortogram. *A*, Large anomalous intercostal artery at T-10 level supplies a vascular anomaly of the spinal column. *B*, Lateral view in same case permits better visualization of the anomaly in the spinal column.

general—such as ascites, dyspnea, clubbing of the fingers, polycythemia, and cardiomegaly—or they may be more specific, depending on the site of the lesion. Thus, involvement of the spinal cord, for instance, often leads to subarachnoid bleeding, motor weakness, and intractable pain. Until recently, this lesion was considered to be untreatable but now with the use of thoracic aortography the abnormal vessels supplying the malformation of the spinal cord can be identified (Fig. 7). Ligation of these abnormal vessels in four patients with early neurologic changes has produced almost complete relief of their symptoms. Angiography is similarly helpful in diagnosis and in planning the therapeutic approach to other such lesions.

Renal Disease.—Disease processes involving the kidneys were among the first pathologic entities extensively studied by angiography. Initially this method was used in the differentiation of renal cysts and neoplasms but, as experience widened, it was noted that differentiation was accurate in only 90 to 95% of cases, mainly because certain renal neoplasms showed no vascularity. In spite of this limitation, renal angiography can be of value and should be employed in selected cases when this differentiation is of prime importance.

At present, the study of pathologic changes in the vasculature of the kidney and, more particularly, of occlusive changes appears to be the most promising use of renal angiography. The association between hypertension and obstruction in the renal arterial system is well known, and it now appears that such obstruction is the etiologic factor in 5 to 10% of patients with high blood pressure. It is obvious that angiographic exami-

nation of all hypertensive patients would be impossible. Thus, some form of clinical selection must be exercised to discover those patients whose difficulties are due to renal arterial disease. Such selection should eliminate patients with longstanding hypertensive disease and those with a familial predisposition to it. Those who remain are in the small group of patients, including children and adults, with hypertension of recent onset, who show evidence of unilateral renal disease, most often a hypoplastic kidney.

Translumbar or retrograde aortography and selective renal arteriography may be employed in the study of these vessels. Renal artery obstruction may be caused by a variety of disease processes, but the intrinsic diseases of the renal artery are more commonly at fault than are extrinsic lesions. In our experience the most common causes of renal artery obstruction have been atherosclerosis and fibromuscular medial hyperplasia of the vessel.

Atherosclerotic plaques located in the aorta may compromise the ostium of one or both renal arteries, or the plaque may be located in the renal artery itself. Multiple areas of narrowing as well as fusiform poststenotic dilatation may be observed. Since atheromatous lesions of the renal artery are usually local manifestations of widespread involvement, similar disease will usually be observed in the aorta and in its other branches (Fig. 8A).

Fibromuscular medial hyperplasia, which is characterized pathologically by irregular areas of hyperplasia of fibromuscular elements of the arterial wall, is primarily a disease of young

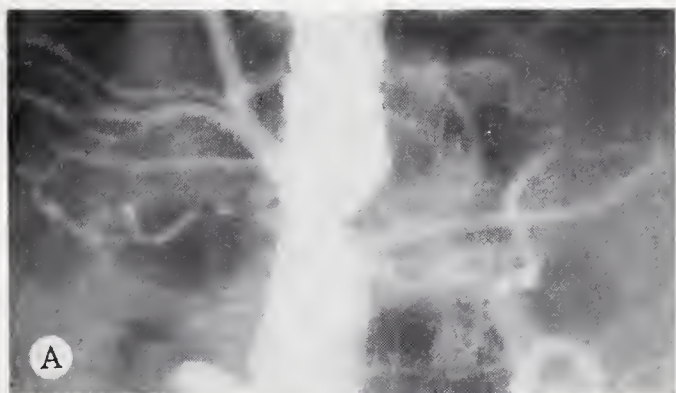
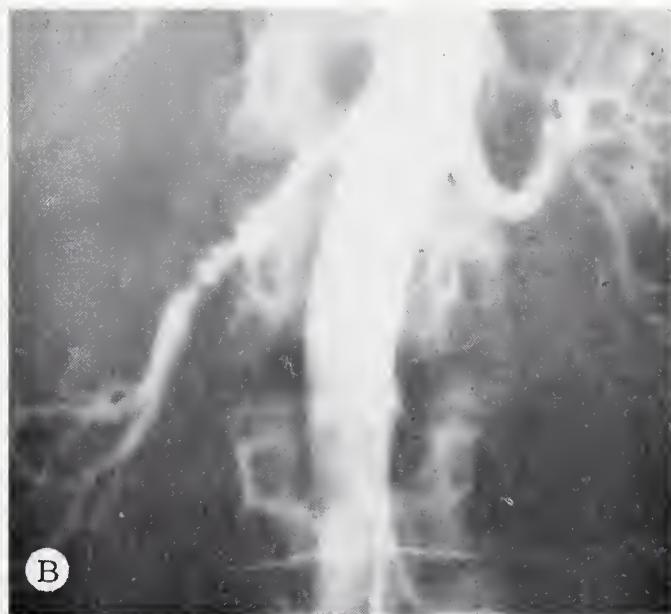


FIGURE 8

A, Marked atheromatosis of the abdominal aorta causing stenosis of both renal arteries. B, "Typical" appearance of fibromuscular disease involving the right renal artery.



adults. Its cause is obscure. Angiographically, this disease manifests itself as multiple areas of concentric narrowing of the renal artery, which produces an irregular "beaded" appearance of the artery. The proximal centimeter of the main artery is rarely affected; bilateral involvement is not uncommon. The typical appearance is illustrated in Figure 8B.

Summary

I have reviewed the use of angiography in the diagnosis of some vascular disorders not infrequently seen in day-to-day practice. When the clinical and pathologic features of these disorders, as well as the recent therapeutic proce-

dures employed in their treatment, are understood, the importance of angiography in the investigation of the patient becomes apparent.

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Glomerular Basement Membrane in Diabetics

P. Kimmelstiel, G. Osawa, and J. Beres (Milwaukee County General Hosp, Milwaukee) *Amer J Clin Path* 45:21 (Jan) 1966

The thickness of glomerular basement membrane was measured in 30 cases of diabetes. Avoiding tangential sections and proximity to the mesangium, over 7,000 measurements revealed a mean width of 3,298 Å with standard deviation of 560 in glomeruli without mesangial nodules. The duration of diabetes in these 23 cases varied from detection on admission to ten years. In contrast, the peripheral basement membrane in glomeruli with nodules had a mean width of 5,373 Å with a standard deviation of 2,280. Basement membrane thickness in diabetes does not seem to exceed the normal significantly until nodular lesions are demonstrable.

Comparison of Hydroxocobalamin and Cyanocobalamin in the Treatment of Pernicious Anemia

J. N. M. Chalmers and N. K. Shinton (Queen Elizabeth Hosp, Birmingham, England) *Lancet* 2:1305-1308 (Dec 25) 1965

Hydroxocobalamin and cyanocobalamin have been compared in the treatment of pernicious anemia by initial parenteral injections of 1,000 gm in both single and quadruple doses. Higher serum-B₁₂ levels were attained when hydroxocobalamin was given and slower rates of fall in this level were observed compared with those following treatment with cyanocobalamin. Maintenance treatment using different dose schedules consistently showed higher serum-B₁₂ levels in those receiving hydroxocobalamin. It is concluded that hydroxocobalamin should be the standard preparation for the parenteral treatment of pernicious anemia.

PSYCHOACTIVE DRUGS: REVIEW AND OVERVIEW

Review of Sites of Action, Uses, Dosage, Side Effects and Contraindications of Psychoactive Drugs With Proposed Classification and Suggested Rules for Prescribing

Robert F. Shannon, M.D.*

INTRODUCTION

With the introduction of chlorpromazine in 1952 and rauwolfia derivatives in 1953, the age of tranquilizers began.⁵ Terms like “tranquilizer”, “ataractic”, “mood elevator”, “psychic energizer”, and others are loosely applied to a group of drugs, all of which are “psychoactive”¹⁶ and “have the capacity of modifying affective states without seriously impairing cognitive functions”.⁵ By 1965 there were 46 psychoactive drugs available including 15 phenothiazine derivatives, 4 rauwolfia alkaloids, 14 skeletal muscle relaxants, and 13 mood elevators.

Standard sedatives and stimulants are excluded from the definitions of psychoactive drugs since their effects would usually modify cognitive functions equally or more so than affective states. All psychoactive drugs do act, however, through either depression or stimulation of certain functions of the central nervous system and can be classified according to their depressing or stimulating actions on certain regions of the brain.

SITE OF ACTION

A psychoactive drug can either stimulate or

depress the cortex, the subcortical structures, the brain stem, or the spinal cord. None of the psychoactive drugs have any significant effect on the spinal cord and only the sedatives and stimulants have a significant or sustained effect on the cortex. The psychoactive drugs have their main action on the subcortical and brain stem structures:^{3,5,6,7} 1. the reticular activating system (RAS); 2. the hypothalamus; and (3) the limbic system.

1. The RAS is the “wake center” or “tension center” of the central nervous system. It consists of nuclei and pathways throughout much of the spinal cord and midbrain and has plentiful connections with spinal pathways, brain stem, and subcortical structures. Certain “centers” such as the “vomiting center” are probably in the RAS. When the RAS is depressed the animal becomes less alert. If it is destroyed the animal continues to live but can not be roused or alerted.^{2,4,7}

2. The hypothalamus is the “thermostat” of the body maintaining homeostasis through hormonal influences and through the sympathetic and parasympathetic systems. Through their depressing or stimulating effects on various portions of the hypothalamus the psychoactive drugs exhibit a wide range of hormonal and autonomic

SITE OF ACTION OF DRUGS*

TABLE I

Type of Drug	RAS	Hypothalamus	Limbic System	Cortex
I. Sedatives	↓	↓	↓	↓
II. A. 1. Rauwolfia Der.	Small dose ↑	Sym. ↓		
	Large dose ↓	Parasym. ↑	Large dose ↑ **	0
2. Phenothiazines	↓	Sym.	Large dose ↑ **	0
B. 1. Propanedial	0	0	↓	0
	Small dose 0			
2. Benzodiazepines			↓	0
	Large dose ↓	? or 0		
III. Mood elevators***	0	0	? ↑	0
IV. Stimulants	↑	↑	↑	↑

*Modified from (7), page 55.

**Stimulates to point of seizure, blocking activities of selected areas.

***Site of action unknown.

actions.⁷

3. What a person thinks is a function of the neopallium or cortex, but what he "feels" is a function of the limbic system. This subcortical system, which includes the hippocampus, amygdala, fornix, mammillary bodies, and anterior nucleus of the thalamus, correlates the emotional and intellectual aspects of consciousness and is believed to contain most of the visceral and emotional centers of the brain. Many instincts and urges arise here as well as such abnormal brain activity as hallucinations, delusions, and rage reactions. Some areas are very susceptible to seizure activity and when stimulated such areas may be functionally obliterated through constant seizure activity performing a functional frontal lobotomy.^{2, 4, 7}

From Table I it will be noticed that all psychoactive drugs have either a depressing or a stimulating effect on one or more of these three structures. Some have effects on all three; some have varying effects depending upon dosage.

Rauwolfia alkaloids and phenothiazines in high doses have broad effects, including a blocking or antihallucinatory effect on the limbic system and are thus antipsychotic drugs. In smaller doses these drugs along with the propanediols and benzodiazepines are more limited in action, show a calming rather than blocking action on the limbic system, and are primarily antitension, antianxiety, or antineurotic drugs.

The sedatives depress all three structures as well as the cortex while the stimulants show a universal stimulating action. Some sedatives or stimulants, however, will have a greater action on one structure than on another so that their uses vary. The mood elevators are represented with a question mark under limbic system because their actual site or mode of action is not known. The amygdala has been postulated as the seat of mood.⁷

CLASSIFICATION

Utilizing what little we know about the site of action, plus what has been learned of their clinical action, the psychoactive drugs can now be classified depending upon their depressing vs. stimulating action as follows:

- I. Sedatives—depress all CNS functions, cognitive as well as emotional. In large doses would act as hypnotics; in small doses as tranquilizers.
- II. Tranquilizers—depress only those CNS func-

tions pertaining to emotions; thus allay tension or anxiety, decrease or stop various affective and/or thought disorders as well as sensory distortions, and may decrease certain autonomic functions.

A. Major Tranquilizers or Antineurotic Agents—depress CNS functions responsible for hallucinations, delusions, rages, and manic or psychotic behavior.

B. Minor Tranquilizers or Antineurotic Agents—depress CNS functions responsible for some levels of tension causing general relaxation and a decrease of neurotic symptoms.

III. Mood Elevators—stimulate some CNS functions primarily those related to mood, yet have some depressing activity in other areas.

IV. Stimulants—stimulates all CNS but may cause actual decrease of some functions.

Before discussing the specific uses, side effects, and contraindications of these drugs, we may generalize on the uses of the entire group of tranquilizers as follows:

1. Some sedatives in small doses may be used as calming or tranquilizing agents.
2. In large doses both rauwolfia and phenothiazine derivatives decrease or stop hallucinations, rage activity, and delusions.
3. Rauwolfia derivatives and phenothiazines in smaller doses act as antianxiety drugs.
4. Propanediols and Benzodiazepines with their calming action on the limbic system and minimal effect on the RAS and hypothalamus should be good drugs for upset emotional states—i.e. anxiety, tension, obsessiveness, phobias, etc. In other words, they are good anti-neurotic drugs. Their lack of action on the autonomic system should make them drugs to use with other agents in the treatment of various psychophysiologic reactions where a minimal autonomic effect is desired. If decreased sympathetic action is desired, the phenothiazines in small doses would be preferred.

In brief, the psychoactive drugs can be classified according to degree of depressing or stimulating action, site of action, and type of clinical relief brought about by each. The tranquilizers fall into two groups classified by diagnosis as: antipsychotic agents and antineurotic agents with both having some use in psychophysiologic reactions.

USES, DOSAGE, SIDE EFFECTS

SEDATIVES: Several sedative drugs continue to be widely prescribed for various psychiatric conditions. While it is not within the scope of this paper to discuss the use of sedatives, it must be noted that in many instances of mild to moderate tension states the judicious use of sedative drugs is indicated. If dose levels are kept small and precautions against habituation are observed, then use in certain instances may be preferable to any of the tranquilizers.

THE MAJOR TRANQUILIZERS—OR ANTI-PSYCHOTIC AGENTS: Major tranquilizers are those which ameliorate mania and schizophrenia and aggravate depression. "Their primary action is to diminish instinctual impetus".⁶ They decrease vital functions such as blood pressure and body temperature; decrease sympathetic tone; may prevent menstruation or interfere with

the normal cycle (through influence on the hypothalamus and then pituitary); may decrease sexual drive (11); or may cause various types of basal ganglia dysfunction (either hypomotility causing a parkinson-like syndrome or through hypermotility with akathisia, tics, torticollis, etc.).¹ They all cause some degree of nasal congestion, hypotension, and dry mouth.^{3,5,6,7} Any of the group may cause a skin rash and some have caused increased melanin pigmentation,¹⁵ cholestatic jaundice, or agranulocytosis.^{3,5,15} All phenothiazines have some degree of antiemetic effect.

Specific drugs along with their uses and dosages are listed in Table II.

COMMENTS ON THE MAJOR TRANQUILIZERS: Both groups are antipsychotic in large doses. Although these drugs are of great help in treating psychotic conditions, they all

TABLE II

DRUGS Trade Name in Parenthesis	USES	DOSAGE	SIDE EFFECTS, CONTRAINDICATIONS See Individual Literature, See Text
I. Sedatives	Mild anxiety reaction	Low dosage	Avoid habituation
II. Tranquilizers			
A. Major			
1. Rauwolfia Der.	Antihypertension Psychoses (schizophrenia) Acute agitated psychosis	0.5 to 2 mgm daily 3-5 mgm daily 5-10 mgm daily	See text for general side effects. Depression, peptic ulcer, insomnia. Contraindications edema, cardiac failure, pregnancy, peptic ulcer.
a. Reserpine			
2. Phenothiazines			
a. Aliphatics			See text and PDR. Hypotension, blood dyscrasias, jaundice, menstrual irregularities, skin rashes, etc. Contraindications depressive reactions, potentiates alcohol, barbituates, narcotics.
(1) Chlorpromazine (Thorazine)	Acute schizophrenia Manic reaction Acute psychosis Mild neurotic states	200-3000 mgm daily 200-2000 mgm daily 50-100 mgm I.M. q 2-4 hrs. 10-25 mgm bid to tid	See text and PDR. Hypotension, blood dyscrasias, jaundice, menstrual irregularities, skin rashes, etc. Contraindications depressive reactions, potentiates alcohol, barbituates, narcotics.
(2) Promazine (Sparine)	Generally same as Thorazine	10-200 mgm q 4-6 hrs. orally	As above, incidence of convulsions high.
(3) Trifluoperazine (Vesprin)	Same	20-80 mgm daily	Same as Thorazine
(4) Promethazine (Phenergran)	Pre and post operative acute anxiety	25-50 mgm I.M.	Same as Thorazine
b. Piperazines			See text and literature. As a group the piperazines are more potent, have high antiemetic qualities and high incidence of extra pyramidal signs.
(1) Perphenazine (Trilafon)	Acute psychosis	8-16 mgm bid to qid orally	
(2) Prochlorperazine (Compazine)	Schizophrenia	up to but not to exceed 60 mgm daily	
(3) Trifluoperazine (Stelazine)	Withdrawn, neurotic states Schizophrenic reactions	1-2 mgm bid orally up to 40 mgm daily	
(4) Fluphenazine	Psychosis	2.5-10 mgm daily (Prolixin) 0.25 mgm bid (Permitil)	Group also includes Dartal.

PSYCHOACTIVE DRUGS: REVIEW AND OVERVIEW

DRUGS Trade Name in Parenthesis	USES	DOSAGE	SIDE EFFECTS, CONTRAINDICATIONS See Individual Literature, See Text
c. Piperidines (I) Thoridazine (Mellaril)	Neuroses	10-25 mgm tid 100-200 mgm qid	Fewer than with above. Group also includes Pacatal
3. Phenothiazine Analogs a. Chlorprothixene (Taractin, Solatran)	Neuroses Psychoses	10-25 mgm daily 75-600 mgm daily	
B. Minor			
I. Propanedials a. Meprobamate	Anxiety	400 mgm bid to qid	Group also includes: Meph- phenesin, Mephphenesin Carbo- nate, Phenaglycadil, and Pro- moxolane.
2. Benzodiazepanes a. Chlordiazepoxide (Librium)	Neuroses, psychosomatic disorders Acute psychoses, deliriums tremors	5-10 mgm tid 100 mgm q 2-4 hours	Valium also in this group.
3. Others: Minor tran- quilizers also include some twenty other drugs such as Genac- tyzine, Atarax, Vistril, Suvren, Trancopal, Placidyl, etc.			
III. Mood Elevators			
A. Monoamine Oxidase Inhibitors			
1. Phenelzine (Nardil)	Endogenous depression	15 mgm 1 to 3 times daily Decrease to 1 daily as soon as possible	See text for side effects, dan- gers, and contraindications. Refer to literature or PDR be- fore prescribing. Group also includes Miamid and Marplan.
2. Tranylcypromine (Parnate)	Psychotic and neurotic depression	10-20 mgm daily	
B. Iminodibongyl			
1. Imipramine (Tofranil)	Withdrawn, endogenous depression	25-50 mgm bid to qid	See text. Contraindicated in Glaucoma. Should never be mixed with MAO inhibitors.
2. Desipramine	Withdrawn, endogenous depression	25 mgm bid to qid	
3. Amitriptyline (Elavil)	Psychotic and neurotic depression	10-50 mgm bid	
IV. Stimulants			
A. Amphetamines	Minimal brain dysfunction in children To counteract drowsiness from phenothiazines	5-10 mgm bid 5-10 mgm bid to tid	
B. Methylphenidate	Chronic fatigue, mild pseudodepressed states Over sedation from pheno- thiazines	10-20 mgm bid to tid 10-50 mgm I.V. or I.M.	

have frequent and serious side effects.

A. The most dangerous side effects are: 1. shock (from I.M. phenothiazine), 2. bleeding or perforated peptic ulcer (reserpine); 3. agranulocytosis; 4. obstructive jaundice (phenothiazines); and 5. worsening of depressive states and possible suicide (with reserpine, thorazine, mellaril).

1. Shock is quite rare, occurs from a few min-

utes to an hour or so after I.V. or I.M. pheno-
thiazines, and is best avoided by judicious use
of parenteral phenothiazines and close check of
BP for 30 to 60 minutes after I.M. use. Since
Phenergan seems more nearly normotensive, it
appears to be the drug of choice for mild seda-
tion. If shock should develop, it should be treated
with either neo-synepherine I.V. or Levophed by

I.V. drip, but never by adrenalin.

2. Reserpine should never be given to any patient who has a known history or symptoms of peptic ulcer. Nor should it be prescribed for a patient who may have an underlying depression. In fact Reserpine should probably be prescribed only in cases where hypertension is a major component of the illness since many people feel that phenothiazines are preferred for most psychotic reactions^{6,7,12,14,16} and other drugs are safer for neurotic and psychophysiologic reactions.

3. Blood abnormalities occur in only 0.3% of cases on phenothiazines^{5,15} and usually during the first eight weeks of therapy. The best precaution is periodic blood counts. The patient should also be advised to report any sore throat, fever, or other signs of infections. If agranulocytosis develops, the drug should be stopped, the patient admitted to a hospital and treated as an emergency with what ever antibiotics, steroids, and transfusions are necessary. When treated early and adequately, the mortality is low.

4. Cholestatic jaundice occurs in "less than 0.5% of patients exposed to these drugs and almost always in the first four weeks of treatment".¹⁵ Bilirubin levels can be checked periodically to detect such jaundice. If jaundice occurs, the drug should be stopped and the patient treated conservatively. No permanent liver damage occurs.

5. Frequent follow-up visits are the best safeguard against the worsening of an underlying depression; the treatment will vary from withdrawal of a drug, changing drugs, adding a mood elevator, or if suicide looms as a possibility admission to an in-patient psychiatric facility.

B. The less dangerous but more frequent side effects are: 1. extra-pyramidal dysfunction, 2. mild hypotension, and 3. skin rashes.

1. Extrapyramidal signs are more common in women, occur in around 10% of cases, may be transient, and usually occur from three days to three months after starting the drug.¹ They are most common with the piperazine group and least common with the piperidine group.¹ If the signs are severe, the offending drug can simply be stopped and another may or may not be substituted. In some cases, however, the antipsychotic effect is needed in spite of the extrapyramidal signs so an antispasmodic agent is added. Artane 1 to 2 mgm one to three times daily,

Cogentin, or Akineton 3 to 6 mg/day will usually control such side effects. Severe reactions can usually be reversed by the use of Cogentin I.V. The long range effect of phenothiazines on the extra-pyramidal system has not been determined.¹³

2. Mild hypotension usually manifests itself as dizzy spells and light headed feelings coming on with changes of posture. An explanation of its cause with encouragement to slow down postural changes and adjust to the hypotension is sufficient in most cases. If not, however, or if syncope is a real likelihood, then the drug should be stopped. Another phenothiazine might then be tried if indicated.

3. Patients on phenothiazines should avoid excessive sun. If any type of skin disorder occurs, it is usually best to discontinue the phenothiazines. There are cases though where the rash is mild compared to the psychosis and phenothiazines are continued with the rash being treated symptomatically.

PRESCRIBING RULES: A major tranquilizer "should not be used for trivial purposes nor for symptoms such as anxiety or vomiting when other less potent and less hazardous agents may be effective."¹⁵ The right drug should be selected for the patient based on the physician's knowledge of the drugs, the patient, and the patient's illness. Rarely very unusual effects are noted with these drugs, and these are probably due to various personality factors within the patient.¹⁰ Most patients, however, respond predictably to the drug provided they are given the correct drug in the correct dose over a sufficient period of time.¹² The most common prescribing errors are underdosing and stopping or changing medicine too early.

Unless a serious side effect develops, the patient should be titrated as to correct dosage and given a four to six weeks trial before stopping or changing drugs.

The true tranquilizing effect will usually not be achieved until after two weeks. If this is not explained to the patient he may become discouraged and quit taking the medicine before giving it an adequate trial. Another trait of these drugs making the first two weeks more difficult is their tendency to cause initial drowsiness. This will clear up in one to three weeks but may require amphetamines in dosage of 5 mgm to 10 mgm b.i.d. until it does. Patients should be cautioned

not to operate an automobile or any other machinery if they are on very large doses of phenothiazines, if they are very drowsy, or if coordination is slow.

Most side effects will occur within the first month. Regulation of dosage will also be done during the first month. Therefore, patients on phenothiazines should be followed closely for the first four weeks. On each visit side effects and desired effects should be evaluated. Don't hesitate to increase the dosage, especially if by the second week desired effects have not been approached. If after six weeks to two months there is no real evidence of improvement in spite of increased dosage, then stop the drug. Decrease it gradually over a period of five to ten days; then, provided there is no incompatibility, start over with a new drug.

If care is used in selecting the drug and in obtaining a therapeutic level, new starts will be infrequent. The antipsychotic drugs are both the most helpful and the most dangerous of the psychoactive drugs. Through the use of these drugs many patients who a decade ago would have been confined to institutions are now able to function in society. Any psychotic patient deserves the optimum benefits available from these drugs. In order to bring his patients the optimum care, every physician should know about these drugs and should keep abreast of new developments as nearly as possible. Since keeping abreast of all developments is impossible, the above prescribing rules should always be followed.

ANTI-ANXIETY OR ANTI-TENSION DRUGS: These drugs are much less potent and generally much safer than the true tranquilizers. Their uses are likewise less specific and abuses more common. So many drugs are available in this category that no one can keep informed on all of them. It seems best to select a few of these drugs, learn as much as possible about them, prescribe them enough to be familiar with their uses, then be very slow to change to the newer ones.

No common group of side effects exists but each drug has its own. Due to the large number only the two most common drugs from this group are presented in Table II.

The greatest dangers with either of these drugs are: 1. letting the patient become habituated, and 2. through the use of the drug unleashing a previously concealed psychosis.⁷ The best precaution

against both is to never prescribe large amounts and never prescribe over a long period of time.

Ostow calls these drugs "ego intoxicants"⁶ and feels they should rarely be prescribed. Others have high praise for one or the other in a wide range of uses.⁷ Smith¹⁶ tends to treat the habituation possibility lightly.

Both drugs are useful in treating epileptics with mild neurotic problems and both help control seizures (whereas the true tranquilizers may precipitate seizures).

Meprobamate's main use seems to be in those conditions which require some degree of muscle relaxation, e.g. back strain, tension headache, menstrual cramps. Since any of these conditions may be chronic, close supervision should be used.

Librium may be the treatment of choice for short term, acute situation reactions, neurotic or psychophysiologic reactions. Since it does not worsen depression and frequently actually raises mood, it is useful in the mixed neurotic depression.

Despite their dangers and their non specific actions, these drugs seem useful enough in several situations to warrant the extra attention required for their use. Even with their tendency toward habituation they present fewer hazards for the "neurotic" patient than do the phenothiazines. **MOOD ELEVATORS:** The mood elevators may also be called "psychic energizers". They facilitate "the generation of psychic energy—(and) as a group tend to undo melancholia and to bring about a mania or schizophrenia".⁶ They usually increase temperature, increase locomotor activity, and elevate mood. Generally they are slow acting and have several side effects. The site or mechanism of action is not known, but the Monoamine Oxidase inhibitors are almost certain to bring about their change in mood through an increase in the brain level of serotonin.⁷

Serotonin, a catecholamine similar in structure to norepinephrine and epinephrine, is believed to play a role in the transmission of impulses within the brain similar to acetylcholine at the myoneural junction. It is found in quantity in the mucosa of the intestine, in the platelets, and in the brain itself (especially midbrain). It does not pass the blood brain barrier being produced there from 5-hydroxytryptophan. There are some stores of Serotonin, but most of it is broken down by the action of monoamine oxidase into 5-hydroxyindolacetic acid which then

goes into circulation and is excreted. An increased amount of serotonin is believed to cause an elevation of mood.

Since monoamine oxidase destroys Serotonin, a drug which would inhibit this action of MAO would increase the brain level of Serotonin, thus would elevate the mood of the depressed patient.

Drugs which inhibit MAO were discovered accidentally in 1951 when it was noticed that some TB patients being treated with iproniazid developed euphoria, increased appetite, etc. Subsequent work led to the discovery that the MAO inhibiting properties of iproniazid were responsible for the mood elevating effect and several similar drugs have been developed during recent years. MAO also breaks down certain pressor substances in the body, the accumulation of which while on MAO inhibitors can cause extreme side effects including very high blood pressure, hemorrhages, and in some cases death. Three MAO drugs have been called off the market permanently because of such side effects. One, Parnate, was called off, then returned last year with precautions that cheese, wines, and beers should not be eaten while taking Parnate and that amphetamines and other stimulants be avoided. All the MAO inhibitors should never be given in conjunction with Tofranil (in fact if MAO inhibitors have been given, two weeks should elapse before Tofranil is begun) and only cautiously with Phenothiazines. They are contraindicated in liver damage and epilepsy, cause a number of side effects, and have occasionally precipitated an overt psychotic episode. With any depressed patient, of course, on medicine or off, the possibility of suicide should be constantly looked for by the physician.

Of the nonMAO inhibitor mood elevators imipramine (Tofranil) is the oldest. It is a iminodibenzyl derivative and has several actions in common with the phenothiazines. How it brings about an elevation of mood is not known, but some action in the limbic system is believed to be responsible.

Like the Phenothiazine, Tofranil is slow in its initial action, and as with MAO inhibitors suicide has to be watched for. With the recent marketing of desipramine, a breakdown product of imipramine, much quicker in action and reportedly safer and more effective, the uses for Tofranil may wane. Antidepressants "work best in initial acute attacks of mild simple depression

in younger individuals; the greater the agitation and the older and more chronic the case, the less favorable is the response".¹³ Tofranil is better in the inhibited depression while Elavil (Amitriptymines) works better for the neurotic, anxious, or agitated depression. Whereas Tofranil takes two to four weeks to have a mood elevating effect, Desipramine is reportedly much more rapid in onset.⁸ Several new mood elevators are available but await adequate trial.

The availability of mood elevators has been a great help in treating depressive reactions and offers more promise in the future. Perhaps we are not too far from the day when ECT will be a thing of the past. At present, however, ECT is still the treatment of choice in some depressions. Included would be deeply depressed suicidal patients, patients so depressed they can not or will not take medication, many involuntarily depressed patients, and those who do not respond sufficiently to the drugs presently available or who show some incompatibility for the mood elevators presently available. Since the response to ECT is to a considerable extent dependent upon how early the depressed patient receives shock, some time limit must be set on the length of a trial on mood elevators. A patient who does not respond to mood elevators in about two months should if very severely depressed be considered for ECT.

STIMULANTS: Stimulants are not like the mood elevators but a common error is to prescribe them for depression. True depression is characterized by, among other things, insomnia, anorexia, and feelings of fatigue. The stimulants cause insomnia and anorexia. Within a very short time they will add to the feeling of fatigue. They are, therefore, not only not useful in a true depression but are actually harmful. Someone has said giving stimulants in a depression is "like whipping a dead horse".

Stimulants are helpful, however, in the early pre or pseudo-depressive state when the main symptoms include mild apathy, excessive appetite, and excessive sleeping. They should be used for only a short period of time, and the time on them should be utilized by the patient to improve whatever circumstance led to his pseudo-depressive state. Any of the amphetamines in a dosage of 5 to 20 mgm/day for two to three weeks would do, but methamphetamine (since it is 1° a cortical stimulant) is probably best. Ritalin, a similar

but less potent drug, could be prescribed in a dosage of 5, 10, or 20 mgm b.i.d. This is frequently useful with tired or grief stricken older people for short periods after some situation stress.

Stimulants are sometimes used to facilitate psychotherapy, to counteract the drowsiness caused by tranquilizers, and for aid in dieting. The amphetamines are probably mixed with more combinations of drugs than any others. Although the side effects are not as dramatic as with tranquilizers and mood elevators, we should remember that these drugs are very habit forming and are probably addicting.

SUMMARY

This article has presented a classification of psychoactive drugs which is based on what is known of their site of action and their clinical use. The possible mode of action, use, dose, side effects, and contraindications of selected drugs from each group are presented. General rules of prescribing are proposed; no effort is made to either "sell" the drugs as panaceas or scare you from ever using these drugs.

Psychoactive drugs represent a great advance in medical science. None of us can keep abreast of all the advances, but by following certain rules I believe we can bring the best care to our patients

while still using caution. All of us should prescribe those drugs we know best and make every effort to select the drug that most nearly fits the need.

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Evidence for the Release of Bradykinin in Carcinoid Syndrome

J. A. Oates, W. A. Pettinger, and R. B. Doctor (Vanderbilt University School of Medicine, Nashville, Tenn) *J Clin Invest* 45:173 (Feb) 1966

Kinin peptide is released by some patients with carcinoid syndrome during epinephrine induced flushes. This peptide was further characterized with gradient elution chromatography, paper chromatography, electrophoresis, enzymatic inactivation rates, and studies on its pharmacologic

effects. All of these investigations indicated the identity of the carcinoid kinin with bradykinin. Carcinoid tumors in these patients apparently release the kinin forming enzyme (kallikrein) in response to stimuli such as epinephrine. This enzyme splits lysyl-bradykinin from globulin substrate in plasma; lysyl-bradykinin is then rapidly converted to bradykinin by plasma aminopeptidase. When large amounts of bradykinin are released in carcinoid patients, this potent vasodilator probably contributes to the pathophysiology.



STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

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The Role of Pelvic Lymphadenectomy in the Surgical Management of Early Stage I Carcinoma of the Cervix

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INTRODUCTION AND HISTORICAL BACKGROUND

During the past two decades beginning with the successful introduction of clinical cytology by Papanicolaou and Traut¹⁰ in 1943, gynecologists have made significant advances in the early detection of carcinoma of the uterine cervix. The widespread use of cervical cytology, cold knife conization of the cervix, and education of the public has extended the frontiers of cancer diagnosis to early lesions and younger patients.

The preferred treatment of Stage 0 carcinoma of the uterine cervix is total hysterectomy. Meigs⁸ led a revival of the surgical treatment of Stage I cervical cancer in this country by showing that radical hysterectomy with pelvic lymphadenectomy may produce results in Stage I lesions equal to those of radiation. Hence, the competent surgeon may choose the surgical route to avoid the late effects of radiation and preserve ovarian function in his young patients with early lesions.

Early cancer detection, however, has introduced a spectrum between carcinoma-in-situ and clinical Stage I cancer of the cervix which includes the "questionably intact basement membrane", "focal micro-invasion" and the early gross lesion

less than one centimeter in diameter which on biopsy and cone shows only superficial stromal invasion.

If one chooses to manage this intermediate area of the Stage 0-I spectrum with primary surgery, at what point in the operation does lymphadenectomy become an indicated part of the operation?

The author has been impressed with the infrequency of positive nodes in our surgical specimens, especially the early Stage I lesions. A review of the literature reveals that several other authors^{3, 4, 5, 14} have also noted this paucity of positive nodes in their early Stage I surgical material.

EXPERIMENTAL PROCEDURE

To evaluate the role of lymphadenectomy in primary surgical treatment of early Stage I cancer of the uterine cervix, all of the radical hysterectomies with pelvic lymphadenectomy performed at the University of Arkansas Medical Center during the ten year period 1 July, 1954 through 30 June, 1964 were reviewed.

Cases were evaluated as to age, gravidity, parity, stage of lesion, and the yield of nodes as well as the incidence of positive nodes. The clinical stage of the disease at the time of the diagnosis and treatment was divided into in-situ or Stage 0, and Stage I which was subdivided into I-M (focal micro-invasion to a depth of five millimeters or less) and I-A (clinical Stage I lesions less than one

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centimeter in diameter, but still confined to the cervix). Clinical results are summarized in Table I.

TABLE I
SUMMARY OF CASES

STAGE	# CASES	# WITH POS. NODES	RECURR.	% 5 YR. SURV.	% 5 YR. SURV. c POS. NODES
0	4	0	0	100%	--
IM	16	0	1-7 yrs.	100%	--
IA	4	0	5.1% 1-9 mo.	50%	--
IB	19	2	10.5% 0	83.3% (90.9%)	1-50%
TOTAL	43	2-4.7%	2-4.7%	81.8% (85.7%)	1-50%

() Corrected Survival

The records were then reviewed for follow-up, and the incidence of fistula, recurrence and survival was determined. The association of pregnancy with this lesion and results in this subgroup were also evaluated.

RESULTS

During the ten year period July 1, 1954 through June 30, 1964, forty-seven patients underwent radical hysterectomy and pelvic lymphadenectomy for Stage I or less carcinoma of the cervix at the University of Arkansas Medical Center. One case was eliminated because it was histologically adenocarcinoma and the staging was uncertain. Three more cases were eliminated because of preoperative irradiation which made the cases unsatisfactory for study of primary surgical therapy. Thus forty-three patients were suitable for this study.

Age range of the patients was from twenty-two to seventy with a median of thirty-eight years. Gravidity ranged from none to twenty-three with a median of five and parity from none to twenty-one with a median of four.

Three of the four lesions classified as Stage 0 were treated by radical hysterectomy with pelvic lymphadenectomy because there were suspicious but inconclusive areas of micro-invasion and one, according to the operative report, was so treated for teaching purposes.

NODES

The number of nodes removed in thirty-seven cases varied from two to twenty-three with a mean of thirteen, while in the remaining six cases, the exact number of nodes was not recorded prior to sectioning and multiple sections made it difficult to be certain. There were only two positive nodes in the entire series, and both were Stage I-B. The first patient was a 57-year-old white

gravid 6, para 6, who had one positive right hypogastric node and is ten years post-treatment without evidence of recurrence.

The second patient was a 22-year-old white gravida 4, para 3 with one positive node from the left "node chain". She was six months gravid at the time of treatment and several "tumor emboli" were evident in the vessels of the parametria. Immediately after discharge from the hospital, the patient left the state but was known to be well two years later. She was subsequently lost to follow-up.

RESIDUAL TUMOR

Three of the four Stage 0 lesions and ten of the sixteen Stage I-M lesions had residual tumor in the surgical specimen after diagnostic conization. This emphasizes the importance of adequate parametrial and vaginal cuff excision when operating on micro-invasive carcinoma of the cervix, whether questionable or definite.

SURVIVAL

The raw survival ranges from three months to ten years. Evaluation of those cases done the first five years of the study reveals twenty-two patients. Two have been lost to follow-up less than one year after treatment including one of the two patients with positive nodes. In addition, two have died. One patient with a Stage I-A lesion died nine months post-treatment of residual tumor and one patient with a Stage I-B lesion was killed in an automobile accident 2.5 years after treatment without evidence of residual at the time of her death. This gives a five year survival rate of eighteen of twenty-two patients or 81.8 per cent. Corrected for the patient who died in the automobile accident, survival is 85.7 per cent.

RECURRENCE

There were two cases of residual tumor or recurrence in thirty-six patients on whom follow-up is available—a rate of 5.5 per cent. Neither recurrence had positive nodes at the original operation. The first patient, who was a 70-year-old white female with a Stage I-M lesion developed recurrent tumor on the anterior vaginal wall seven years after surgery. This was treated in September, 1964 by radium in a vaginal mold. The second patient, who was a 50-year-old white female with a Stage I-A lesion died nine months after operation with palpable pelvic tumor and ascites. Autopsy was not granted.

OPERATION

In nineteen cases the staff attendant was the predominant surgeon with resident assistants. In seventeen cases the senior resident was the predominant surgeon with staff assistant. In the seven remaining cases, the operative note indicated essentially equal participation by staff and resident surgeon.

ASSOCIATION WITH PREGNANCY

Eight of the forty-three cases were associated with pregnancy. One case with positive nodes, Stage I-B operated on in 1957, has been lost to follow-up after leaving the state. Another Stage I-B operated on in 1956, was killed 2.5 years later in an automobile accident and was free of recurrence up to that time. The remaining six patients are from six months to nine years post-treatment, three being nine, nine, and six years respectively post-treatment. Five year survival in the pregnant group is three of five or 60 per cent. Again, corrected for the patient who died in the automobile accident, it is 75 per cent. Table II summarizes this pregnant subgroup.

FISTULAE

Ten of the forty-three patients developed fistu-

TABLE II
PREGNANT SUB-GROUP
PREGNANCY

STAGE	# CASES	# WITH POS. NODES	RECURR.	% 5 YR. SURV.	% 5 YR. SURV. c POS. NODES
O	1	0	0	---	---
IM	2	0	0	---	---
IA	0	0	0	---	---
IB	5	1	0	60% (75%)	0-0%
TOTAL	8	1	0	60% (75%)	0-0%

() Corrected Survival

lae, a rate of 23.3 per cent. Although the pregnant group of patients is too small to be statistically significant, it is an interesting observation that there were no fistulae in that group. Increased vascularity and easily defined tissue planes in the pregnant patient may have some bearing on this outcome. All except one of the ten patients with a fistula had a successful repair on the first attempt. One patient had two failures at ureteral repair and a subsequent right nephrectomy.

DISCUSSION

Table III is a comparison made from a review of the literature evaluating Stage I lesions as a

TABLE III
REVIEW OF LITERATURE - STAGE 1

STAGE*	Author	# PTS.	% WITH POS. NODES	OP. MORT.	% 5 YR. SURV.	% 5 YR. SURV. c POS. NODES	RECURR.
I	Riva et al.	65	16%	---	84.4%	45%	---
I	Masterson	100	10%	4%	80.0%	40%	---
I	Meigs	66	18.2%	---	81.8%	41.7%	---
I	Parsons, Cesare, Friedell	46	13.4%	---	78.1%	50%	---
I	UAMC	39	5.1%	0	85%	50%	2

*Refers to full spectrums of Stage 1 lesions, IM, IA, IB.

TABLE IV
REVIEW OF LITERATURE - SUB-STAGE 1

STAGE	AUTHOR	# PTS.	% WITH POS. NODES	OP. MORT.	% 5 YR. SURV.	% 5 YR. SURV. c POS. NODES	RECURR.
I	Welch, Pratt, Symmonds	16	0%	---	100%	---	0
O	UAMC	4	0%	---	100%	---	0
IA	Friedell, Grahm	46	0	---	100%	---	1
IA	Welch, Pratt, Symmonds	36	0	---	100%	---	---
IA*	UAMC	20	0	---	77.8%	---	1
IB	Friedell, Grahm	153	21.6%	---	---	---	---
IB	Welch, Pratt, Symmonds	144	11.8%	---	85.7%	---	---
IB	UAMC	19	10.5%	---	90.9%	50%	---

*Includes IM

composite group. When Stage I cancer of the cervix is considered as a single unit, it is noted that node involvement varies from 5.1 per cent to 18.2 per cent and Morton⁹ in a review of the literature of lymph node metastasis found an average incidence of 16.3 per cent in Stage I carcinoma of the cervix. The average of the five series in Table IV is 12.5 per cent.

Table IV is a composite table made from review of the literature, utilizing sub-stages. Welch, Pratt and Symonds¹⁴ have summarized their primary surgical treatment of Stage 0 and Stage I carcinoma of the cervix at the Mayo Clinic. Their criteria and staging of O, I-E and I-B, is very similar to ours. Notable differences in statistics include their higher survival in early Stage I and our higher survival in late Stage I lesions.

They state, "We do not consider the radical removal of the uterus, tubes, and ovaries without dissection of lymph nodes an adequate operation for invasive squamous cell carcinoma of the cervix except for carcinoma in which invasion is only of microscopic proportion." They reach this opinion after noting in their series of sixteen Stage 0 and thirty-six Stage I-A lesions that "in all these fifty-two patients, the disease was controlled successfully with radical hysterectomy and probably could have been handled successfully with a lesser procedure as the likelihood of lymph node metastasis is remote in our experience."

Friedell and Graham³ summarizing primary surgical treatment of Stage I lesions from Pondville, Free Hospital for Women, Massachusetts General, New England Deaconess and Massachusetts Memorial Hospital segregated forty cases of Stage I lesions less than one centimeter in diameter from a total of one hundred ninety-three patients. From their findings they also suggest that lymph node metastasis is uncommon in carcinoma of the cervix less than one centimeter in diameter. They point out, however, that rare exceptions occur by reporting a single case in addendum to their article of iliac node metastasis with a lesion appearing less than one centimeter in diameter. Decker² has reported a similar case of a positive node with only micro-invasion and Song¹³ has shown by serial sectioning of the entire cervix in carcinoma-in-situ several instances of lymphatic channel involvement without evidence of stromal invasion per se.

The late Joe V. Meigs⁸ remarked that his statistics "point up the fact that surgical results de-

pend greatly upon extent of the disease: The more extensive it is, the more positive nodes are found, the more positive nodes, the poorer the results." Corscaden¹ and Graham, Sotto, and Paloucek⁵ similarly make and document this basic premise. This trend is clearly seen in Table IV and in the combined statistics of Stage I lesions. The series with lower positive node rates and higher five year cure rates undoubtedly represent selection of earlier lesions for surgical management.

The adequate management of early Stage I carcinoma of the cervix by simple hysterectomy has also been approached in retrospect. Friedell, Hertig, and Younge⁴ reviewed two hundred forty-three cases of carcinoma-in-situ from the Free Hospital for Women and found that in sixty-one of the cases there was extensive gland involvement and questionable early invasion. They were able to obtain blocks on twenty-five of these sixty-one cases and on doing semi-serial sections found definite microscopic stromal invasion in eight cases or 3 per cent of the total series. All eight of these patients ultimately diagnosed as having foci of micro-invasion are five or more years post-treatment without recurrence. This had led them to make their statement, "Total hysterectomy appeared to be adequate therapy for the 'borderline' cases in this series as well as for cases of carcinoma-in-situ without questionable 'early' stromal invasion and may very well be adequate therapy in cases of focally invasive carcinoma of minimal histologic extent."

They are careful to point out, however, that if definite but focal stromal invasion is present, the patient should be considered for therapy on an individualized basis. The age and general medical condition should be weighed against the morbidity and mortality of a larger operation. They feel that cases with definite focal invasion may have a slightly less optimistic prognosis than the 100 per cent five year cure rate now evident.

Schmitz¹² in 1956 presented a series of twenty-five cases of carcinoma-in-situ treated by total hysterectomy in which he was concerned about the initial diagnosis. On serial sectioning and further study of the cone and surgical specimen ten or 43.4 per cent of the cases were found to be micro-invasive. No further treatment was given and no recurrence of micro-invasive cases had occurred within the first five years post-treatment.

Latour⁷ in a similar review of two hundred

seventy-four cases diagnosed as carcinoma-in-situ found one hundred thirty-six true in-situ lesions and one hundred thirty-eight which qualified as pre-clinical lesions but with minor degrees of invasion. All were treated by total abdominal hysterectomy with a wide vaginal cuff and five year follow-up revealed no recurrences although there had been several deaths from intercurrent disease.

Finally, Laman Gray⁶ has very recently edited an entire book devoted to this problem. Meigs contributed the section of this book devoted to treatment of "micro-carcinoma". He felt that Stage I carcinoma must be subdivided in order to study treatment results intelligently since grouping of micro-carcinoma with late Stage I lesions increases the survival rate and makes comparison with other authors difficult. He advocated grouping micro-carcinoma with Stage I-A and using only Stages I-A and I-B which he felt useful but indicated the impracticality of creating an additional Stage O-I or some other such separate designation for "micro-carcinoma." This was compatible with the pathologists at his institution who seldom make a diagnosis of micro-carcinoma but consider the lesion either in-situ or frankly invasive.

Based on his review of the literature and the work of others who have used a subdivision of Stage I lesions, he formulated the following opinions: That diagnosis of carcinoma-in-situ on biopsy warrants complete study of the cervix before definitive surgery, but if after such complete study only minimal breakthrough of the basal epithelium is found, non-radical surgery has been shown to be adequate treatment but should include removal of the cervical fascia and two centimeters of vaginal cuff and finally that if deep stromal or lymphatic invasion is found, radical surgery including lymphadenectomy should be done.

Parsons, et al¹¹ summarizes the situation by stating "bilateral pelvic lymphadenectomy should be done, but the emphasis on therapy should be placed on the local disease and its extension and not on the regional nodes."

From the results of our study and the review of the literature, it appears that lymphadenectomy may not be warranted as a part of the surgical approach to questionable or early focal micro-invasion of squamous cell carcinoma of the cer-

vix, but that parametrial and adequate cuff excision are indicated.

SUMMARY

The extent of the surgical procedure warranted in the treatment of early micro-invasive carcinoma of the uterine cervix has been assessed by reviewing the literature and our experience and results with radical hysterectomy and bilateral lymphadenectomy in such cases. Particular attention has been given to the incidence of positive lymph nodes and five year survival rate as effected by the presence of positive nodes. The suggestion that this radical procedure may not be warranted for questionable or early focal micro-invasive lesions is made.

CONCLUSIONS

1. Forty-three cases of Stage O and Stage I squamous cell carcinoma of the cervix treated by radical hysterectomy with bilateral pelvic lymphadenectomy have been presented.

2. The incidence of positive nodes was two patients, 4.7 per cent for the entire study, 5.1 per cent for Stage I lesions combined, and 10.5 per cent for Stage I-B lesions where both cases with positive nodes occurred.

3. Corrected five year survival was 100 per cent for Stage O and 85 per cent for the combined Stage I lesions.

4. Five year survival with positive nodes was 50 per cent.

5. It appears that bilateral pelvic lymphadenectomy may not be warranted for questionable and early focal micro-invasive squamous cell carcinoma of the uterine cervix but wide parametrial and vaginal cuff excision probably are indicated.

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October 1963 New Orleans Asthma Study

P. A. Kenline (4676 Columbia Pkwy, Cincinnati)
Arch Environ Health 12:295 (March) 1966

An aerometric study was carried out in New Orleans during October 1963 as part of an investigation of the New Orleans epidemic asthma. The objectives of this activity were to establish any difference in air quality between asthma outbreak days and other days, evaluate geographic and temporal variations in pollution characteristics, and evaluate various uncommon methods of measuring air pollution. Such methods included a photoelectric particle counter, an air ion counter, a high volume elutriator sampler, membrane filters, intermittent rotoslide sampler, and electrostatic precipitator. The results of sampling are compared with the asthma variation; generally, gases and large particulates (typified by the high volume sampler) showed no significant variation with respect to asthma. Small particulates (less than 20μ) had significant positive correlations, while air ions had significant negative correlations with asthma.

Congestive Heart Failure in Children With Atrial Septal Defect

M. Weinberg, Jr. et al (Cook County Hosp, Chicago) *J Thor Cardio Surg* 51:81-87 (Jan) 1966

Congestive heart failure or severe symptoms of physical disability, growth retardation, and frequent pulmonary infections may occur in children with preoperative diagnosis of atrial septal defect. Preoperative evaluation and management of these patients should be directed to four aspects: early recognition of the anomaly and thorough physiologic studies, intensive treatment of congestive heart failure, control of respiratory infections, and early operative correction of the defect. At operation patients may have additional lesions in need of correction. Where no additional anomaly is present, it is likely that left ventricular compliance has been altered to increase resistance to diastolic filling. Even though the signs of congestive heart failure may be controlled with digitalization and diuretics, growth and development may still lag until the shunt is abolished.

TEACHING SEMINAR

University of Arkansas Medical Center
Little Rock, Arkansas



SEVERE BRONCHIAL ASTHMA: Its Pathology and Treatment

Eleanor A. Lipsmeyer, M.D.*

Allergic bronchial asthma is characterized by recurrent episodes of dyspnea due to acute bronchial obstruction. Patients with asthma exhibit eosinophilia and hypersensitivity to allergins, but are healthy between attacks. Severe persistent episodes of asthma—status asthmaticus—may last for days or weeks and do not respond to the usual forms of therapy. In most instances, chronic bronchitis and emphysema may be differentiated from asthma easily, since they are often associated with chronic cough, daily sputum production and progressive dyspnea.¹

Although status asthmaticus is not usually regarded as a life-threatening illness, it was the cause of death in eleven percent of patients with bronchial asthma evaluated at the Mayo Clinic.² This report reviews the pathology and clinical findings in severe complicated asthma, and discusses the management of this condition.

CASE REPORT

CASE 1. This 38-year-old man recalled that between the ages of 6 and 12, he had episodes of dyspnea promptly relieved by injections of epinephrine. A diagnosis of bronchial asthma was made. He had no further attacks for twenty years, until the spring of 1959, when acute dyspnea was once again diagnosed as bronchial asthma. Recovery was prompt but episodes of dyspnea recurred each spring during the next three years.

On April 1, 1963 he again developed dyspnea and cough, and his physician prescribed epine-

phrine injections and corticosteroids. On April 9, he was hospitalized in another city with a severe attack of asthma. At the time, sputum production was approximately 30 ml. per day. He was given aminophylline, and several other medications, and released from the hospital. At the advice of his physicians, he stopped smoking.

Episodic dyspnea became progressively severe until, on April 16, he was admitted to the hospital. He had constant cough and in the first 24 hours of hospitalization, he produced 180 ml. of grossly purulent sputum that contained bronchial casts 2 to 3 cm. in length. He was afebrile, and normotensive. Inspiration was quick and jerking and expiration was prolonged. Scattered basilar rales were present bilaterally. Cardiovascular examination was within normal limits. The white blood count was 14,900 per cu mm with 11% eosinophils.

He developed an intractable cough that persisted through the second hospital day. At 4 a.m., 60 mgm of codeine, given intramuscularly, was only partially effective in stopping his cough. The same dose of codeine was given at 6 a.m. The patient then slept quietly for about three hours, but was severely dyspneic when he awoke.

By 11 a.m., on the third hospital day, he was cyanotic and struggling desperately for breath. Emergency tracheostomy was performed and several large bronchial casts were obtained on aspiration of the tracheobronchial tree. Ventilation was assisted with a mechanical respirator

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using positive pressure, and tracheobronchial secretions were aspirated every twenty minutes. He was given prednisone and aqueous crystalline penicillin. Signs of bronchial obstruction diminished; his cough disappeared; and the prednisone dosage was rapidly reduced and discontinued within a week. The tracheostomy tube was removed and he was discharged from the hospital on May 4.

Two days later dyspnea recurred and he was readmitted to the hospital. Therapy included tracheostomy, corticosteroids and antibiotics and again he improved. Stained smears of the sputum revealed numerous eosinophils.

Since that time episodes of asthma have necessitated hospitalization on three other occasions, but he has not required tracheostomy.

During the past year, he has done well with only an occasional episode of dyspnea. At the time of his acute illness in April, 1963 his pulmonary function studies included a vital capacity (VC) of 3.9 L; a one second vital capacity (FEV₁) of 2.15 L; and maximum mid-expiratory flow rate (MMEF) of 1.13 L/sec. In contrast, function studies after he became asymptomatic revealed a VC of 5.61 L; FEV₁ of 3.88 L; and an MMEF of 2.81 L/sec.

COMMENT: This patient with allergic bronchial asthma was treated with corticosteroids but without antibiotics and developed bronchial infection. Bronchial obstruction was heralded by an intractable cough and purulent bronchial casts. This is sometimes referred to as "plastic bronchitis." Following administration of codeine, the obstruction became so severe that the patient almost died of acute pulmonary insufficiency. Emergency tracheostomy with aspiration of tracheobronchial secretions was performed, and corticosteroids and antibiotics were administered. He recovered from this episode and from several minor recurrences and now has normal pulmonary function.

CASE 2. A young woman had been treated at the University of Arkansas Medical Center since age 7 for bronchial asthma. She received desensitization injections, but the course of her illness was marked by progressively severe asthma. At age 18, she had an episode of status asthmaticus and despite vigorous therapy with fluids, bronchodilators and corticosteroids, she died.

At post mortem examination, the lungs were hyperinflated and many of the secondary and

tertiary bronchi were filled with thick, tenacious green mucus. Whole lung sections revealed over-expansion of distal tissue without evidence of parenchymal destruction.

Microscopic examination demonstrated exudate consisting of eosinophils, mononuclear cells, and epithelial cells within the lumen of the bronchi and bronchioles. Occasionally, this exudate was found impacted in the alveolar spaces. Many of the lining epithelial cells were completely or partially detached from the bronchial wall. The basement membrane of the bronchial epithelium was thickened and the capillaries in the submucosa were dilated. In the bronchial walls, there was an inflammatory reaction consisting of mononuclear cells and eosinophils, and the mucous glands were dilated and hypertrophied. The peribronchial muscle mass was increased. Except for a few foci of interstitial fibrosis, the pulmonary parenchyma was normal as were the pulmonary vessels. Appropriate stains revealed no bacteria.

CLINICAL FEATURES

During status asthmaticus patients are anxious and apprehensive. Cyanosis is common. Although cough is frequently present, sputum production is variable. Fever is not characteristic but may be present with infection. Dehydration is due both to poor fluid intake and to a large insensible fluid loss. Respiratory movements are labored and include the use of the accessory muscles. The respiratory rate is slow and the expiratory phase is prolonged and frequently associated with wheezing that may be audible across the room. The resistance to expiratory air flow is increased and may be eight times greater than normal.³

A rare complication of asthma, plastic bronchitis, is precipitated by acute infection—presumably bacterial. As the term suggests, solidification of the bronchial exudate produces casts in the smaller airways.⁴ These patients breathe with a quick inspiratory jerk or gasp that is typical of this condition. Occasionally, a pathognomonic *bruit de drapau*, a flapping sound over the obstructed bronchus, may be heard on auscultation. It is caused by the vibration of the cast with respiration. Sudden cessation of asthmatic wheezes should alert the physician to the possibility of complete airway obstruction with bronchial casts. The mortality of this condition is very high. Occasionally, the formation of a large cast will completely obstruct the bronchus and lead to atelec-

tasis of a lobe or even an entire lung.

PATHOLOGIC FINDINGS

At autopsy the lungs are overdistended and the bronchi are extensively plugged with mucus.⁵ Intraluminal exudate may firmly adhere to the bronchial epithelial cells which tend to separate from the bronchial wall. Dunnill⁶ postulates that this exudate consists not only of the mucus produced by glands and goblet cells but also of a protein laden transudate which arises from increased permeability of the dilated submucosal capillaries in response to allergic stimuli. The bronchial mucosa is edematous and contains a cellular infiltrate rich in eosinophils. The bronchial basement membrane is greatly thickened and tyalinized. As Williams and Leopold⁷ have noted, this inflammation extends peripherally only as far as the terminal bronchioles. These authors propose that the absence of inflammatory response in the distal pulmonary parenchyma explains the lack of destructive pulmonary emphysema in patients with asthma.

GENERAL MEASURES OF THERAPY

Reassurance is an essential therapeutic measure in the treatment of these patients. Removal from the home environment to the well ordered routine of the hospital can allay the patient's fear and relieve the family of nursing tasks.

These patients are frequently dehydrated because of vomiting, failure to take fluids and increased insensible water loss. Dehydration must be accomplished to avoid drying of bronchial secretions and impaction of mucous plugs.⁸ Fluid replacement must be individualized for each patient, but in general, administration of 3 to 5 liters of parenteral fluid during the first 24 hours is necessary. Thereafter, the daily fluid intake should be governed by the remaining fluid deficit and additional losses.

The fatal termination of status asthmaticus is almost uniformly accompanied by the inspissation of bronchial secretions with formation of bronchial casts. Moisture must be delivered to the trachea with the inspired air so that tracheo-bronchial secretions remain moist and more easily expectorated. Nebulization provided by the Puritan® or similar type nebulizer is most useful since the water in the nebulizer reservoir is maintained at 60° C and the resultant aerosol is fully saturated with water vapor and abundantly laden with droplets. Continuous nebulization with 40

percent oxygen in air is given initially, but as the patient improves, nebulization can be administered intermittently (e.g. twenty minutes four times daily). Every reservoir type of nebulizer should be cleaned daily with some bacteriostatic solution such as 0.25% acetic acid, to prevent the transmission of bacteria to the patient.⁹

Bronchodilator drugs provide symptomatic relief and are important aids in the removal of bronchial secretions. The classic bronchodilator, epinephrine HCl (0.1 to 0.3 ml. subcutaneously of the 1:1000 aqueous solution) is of greatest benefit in acute episodes of bronchospasm. However, after an attack has persisted for several hours, and several doses of epinephrine have been administered, the responsiveness of the patient to the drug may become reduced. Blumenthal¹⁰ noted that acidosis (pH range 7.26-7.37) decreased the effectiveness of epinephrine and that the response was improved by the correction of acidosis. This may best be accomplished by the administration of sodium bicarbonate intravenously.

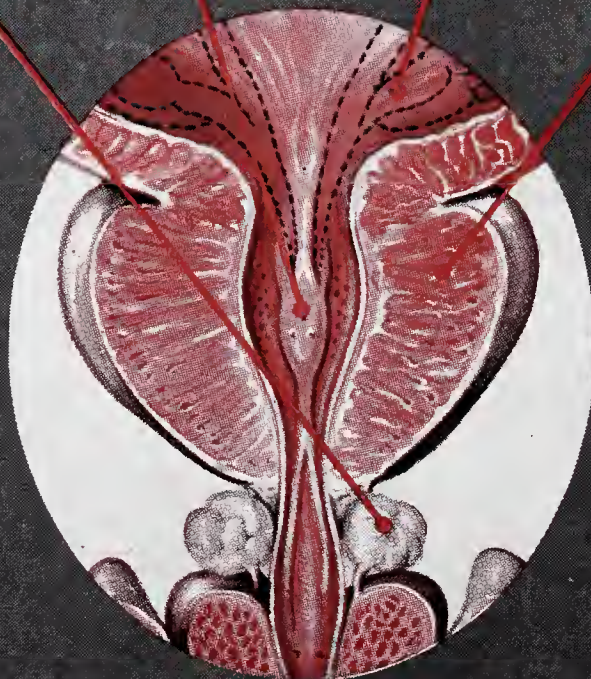
Aminophylline and other xanthines relax bronchial musculature¹¹ and improve ventilation. Aminophylline should be administered intravenously in a dosage of 250 mg in 500 ml of 5% glucose in water. This drug should not be given intravenously without dilution because of the danger of circulatory collapse.

Examination and inspection of the patient will not accurately reveal the status of his alveolar ventilation. For this reason, arterial blood gas determinations are an essential part of management. Arterial blood pH, PO₂, and PCO₂ should be determined initially and performed periodically during therapy to monitor adequacy of ventilation. Beale, et al.¹² have studied patients who had hypoxia and hypercapnia, who were given oxygen without assisted ventilation. Further respiratory depression occurred with increasing acidosis and carbon dioxide retention. These patients developed delirium, stupor and coma that was reversible on withdrawal of the oxygen. It is imperative, therefore, that the physician observe the patient carefully whenever oxygen is given without assisted ventilation. Ordinarily, if any depression of ventilation is to occur it will be apparent within thirty minutes, and arterial blood analysis will show an increased PCO₂. Signs of carbon dioxide narcosis, such as restlessness, increasing irritability and unresponsiveness indicate the need for assisted ventilation.

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Dosage and Administration

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In men: in whom trichomonads have been demonstrated, one 250-mg. oral tablet b.i.d. for ten days.

Contraindications

Pregnancy; disease of the central nervous system; evidence or history of blood dyscrasia.

Precautions and Side Effects

Complete blood cell counts should be made before and after therapy, especially if a second course is necessary.

Infrequent and minor side effects include: nausea, unpleasant taste, furry tongue, headache, darkened urine, diarrhea, dizziness, dryness of mouth or vagina, skin rash, dysuria, depression, insomnia, edema. Elimination of trichomonads may aggravate moniliasis.

Dosage Forms

Oral—250-mg. tablets/Vaginal—500-mg. inserts

SEARLE

Research in the Service of Medicine

After several hours of respiratory obstruction, secondary bacterial infection plays an important role. For this reason, the sputum must be examined by smear and culture. The organisms most frequently encountered are the pneumococcus, *B hemolytic streptococcus*, and *Haemophilus influenzae*. Penicillin is accepted treatment of infections with the first two organisms; in large doses (600,000 units aqueous penicillin intramuscularly every 4 to 6 hours) it is also effective against *Haemophilus influenzae*. Because of their allergic background, these patients should be questioned closely about penicillin sensitivity and scratch test should always be done prior to penicillin administration. If penicillin hypersensitivity is present; tetracycline, 500 mg every 6 hours orally is the drug of choice. If the patient is unable to take tetracycline orally, it may be given intravenously, but the intravenous dose should never exceed 2.0 grams in 24 hours.¹³

Corticosteroids are the therapeutic agent that produces the most dramatic result in the treatment of status asthmaticus. In a controlled study, the British Medical Research Council¹⁴ found that patients receiving corticosteroids had less obstruction and recovered more rapidly than those patients who had not received them. Recommended therapeutic dosage is 100 mg. Hydrocortisone given intravenously twice a day until symptoms subside. If used no longer than 4 to 5 days, the drug may be abruptly discontinued without concern for pituitary suppression.

SPECIAL FORMS OF THERAPY

In patients with marked hypercapnia, tracheostomy, aspiration of secretions, and mechanically assisted ventilation may be life-saving. Before the tracheostomy tube is inserted, an inflatable rubber cuff is placed around the external cannula to permit tracheal occlusion and facilitation of assisted ventilation. When suction must be alternated with ventilation, a cycle of 30 seconds of suction followed by 20-30 minutes of ventilation is adequate.

Assisted or controlled mechanical ventilation with intermittent positive pressure breathing (IPPB) is indicated for treatment of severe hypoventilation. The IPPB device cycles when a preset inspiratory pressure in the trachea is reached. In these patients with increased airway resistance, inspiratory pressure increases rapidly, and at normal rates of air flow the machine cuts off prematurely. By decreasing the inspiratory flow rate of

the machine, the inspiratory pressure slowly increases, permitting a larger volume of air to be inspired before the cut-off pressure is reached. The problems encountered in maintaining ventilation and removing secretions are comparable to those met by the anaesthesiologist and his help should be employed in hospitals where only a few patients undergo tracheostomy.

Narcotics are contraindicated in this condition because of the respiratory depression they induce. In a study of fatal cases of status asthmaticus,¹⁵ it was found that the mortality rate was much higher in patients who had received sedative drugs. Diphenhydramine (Benadryl), phenobarbital, morphine sulfate, meperidine hydrochloride (Demerol), codeine, and chlorpromazine¹⁶ have all been noted to have a respiratory depressant action, and it would appear that no sedative or tranquilizer is without this effect. Occasionally, patients become so restless during controlled mechanical ventilation that sedation is necessary. Constant nursing supervision is then required.

The measures outlined above, tracheostomy, aspiration of secretions, assisted ventilation, antibiotics and corticosteroids are the keystones, of therapy in status asthmaticus and their use may be life-saving.

SUMMARY

The findings of two patients with severe asthma have been reviewed. One patient survived plastic bronchitis and one died because of status asthmaticus. The pulmonary histology from the fatal case was presented with a discussion of the recorded findings in the literature. Treatment of severe forms of asthma is discussed.

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Cytoplasmic Microtubules in Blood Platelets

E. Sandborn and J. J. Lebus (University of Montreal, Department of Anatomy, Montreal, Canada) *Blood* 27:247 (Feb) 1966

Blood platelets of the rat when fixed within liver sinusoids by a perfused solution of glutaraldehyde and acrolein contain a regular arrangement of cytoplasmic microtubules near their periphery. These microtubules are morphologically indistinguishable from those which appear as constant organelles in plant and animal cells. A contractile action is suggested as one of the possible functions of this organelle. The absence of these organelles in platelets, when subjected to standard means of preparation suggests that either the fixative or other abnormal influences are responsible for the transformation of microtubule to a form not recognizable as such. Granules are demonstrated on the outer surface of the limiting membrane of the platelet.

Place of Surgery in Hypertrophic Obstructive Cardiomyopathy

H. H. Bentell (Postgraduate Medical School, London) *J Thor Cardio Surg* 51:49-52 (Jan) 1966

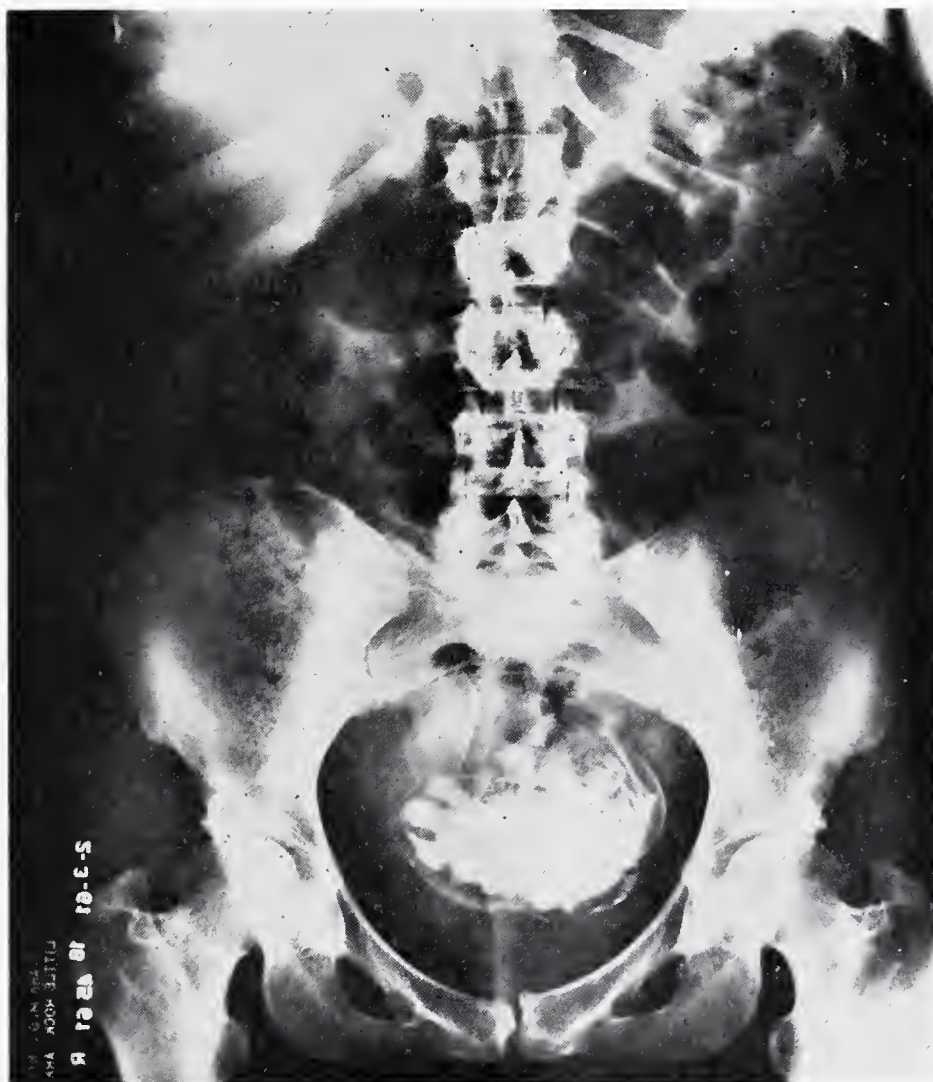
The results of surgery in 16 patients with hypertrophic obstructive cardiomyopathy is given, concluding that surgery is indicated for those patients with severe symptoms and in danger of death in whom drug treatment is ineffective. Histochemical evidence shows that the condition represents a widespread dystrophy of grossly hypertrophic muscle fibers. The most striking feature is the proliferation of sympathetic nerve fibers with consequent and demonstrable noradrenosis, with a possible link to muscular changes of the sympathetic nervous tissue. Removal of the sympathetic nerve cells responsible for the production of the levarterenol seems logical, especially in patients with no localized muscular obstruction.



WHAT IS YOUR DIAGNOSIS ?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

SEE ANSWER ON PAGE 567



18-45-61

26 year old female

HISTORY: Four years ago the patient noted that she missed several periods and her abdomen began to swell somewhat. She was asymptomatic until one month prior to admission when she began to have abdominal pain.



PUBLIC HEALTH AT A GLANCE

TETANUS

Tetanus is almost 100 percent preventable, yet every year a few cases are reported. This relatively low morbidity may contribute to the difficulty of obtaining and maintaining immunity to the disease, since the average citizen either is unaware of the notoriously high mortality or is lulled into complacency, assuming "it will never happen to him". Be this as it may, we had thirteen (13) unnecessary human cases of tetanus in Arkansas during 1965 with eight (8) untimely, yet needless deaths in spite of modern medical advancements. The two (2) neonatal cases are an especial blight on our records, in spite of the availability of good obstetrical care throughout the State, also in spite of educational advances that should preclude the avoidance of superstitious or other acts that would contaminate the umbilical stump after proper aseptic tying and dressing techniques at delivery. Perhaps the immunization of the mother during the third trimester of pregnancy could prevent this tragic occurrence even though the care on return home may leave much to be desired.

Preliminary data show that there were 276 cases of tetanus in the United States during 1965 as compared to 267 in 1964. The decline in incidence for the United States is regrettably, remarkably slow as we have roughly half as many cases now as we did 20 years ago. Let us hope that succeeding generations utilize active immunization to a greater extent than has been the case to date.

Since over half of all Arkansas tetanus cases as well as all United States cases occur among adults, we physicians must foster a constant alert for patients of all ages to have stimulating or booster doses of toxoid at sufficiently frequent intervals to prevent the waning of immunity to a dangerously low level. Recent immunological studies suggest that 6 to 10 year intervals may be ade-

quate provided that a tetanus toxoid stimulating dose is given promptly at time of injury. People in high risk areas or occupations still should have boosters every 3 to 4 years.

The safety of giving tetanus toxoid has been repeatedly emphasized by Ramon, Eckmann, Edsall, and others on the investigative level as well as by Rosenan, Maxey, Anderson, and others of authority in Public Health administration. One of the greatest talking points for mass active immunization is the need to have circulating antibodies in everyone as a precaution against any disaster situation whether natural or man made.

The Arkansas State Department of Health has repeatedly pointed out that the injuries or wounds associated with tetanus cases frequently are of extremely minor significance and no history of injury at all can be established for some, especially in the older individuals.

Although rural areas have a theoretically greater contamination of the soil from dejecta of domestic animals, human cases of tetanus in Arkansas occur in the more populous urban areas as frequently as in the more rural population, yet these individuals have access to the preponderance of medical facilities both private and public.

Motivation of the public to seek preventive medical services, preferably in their own private physician's office for their physician's ready access to their records should they fail to carry an immunization record, is needed more and more as the impact of man upon his fellow man becomes more evident. Minor injuries are so frequently encountered at home and at work that we all tend to minimize the potential danger, perhaps never think about them again, or procrastinate that we will go out of our routine day by day activities tomorrow—then forget to get the stimulating dose or extend the time to do so.

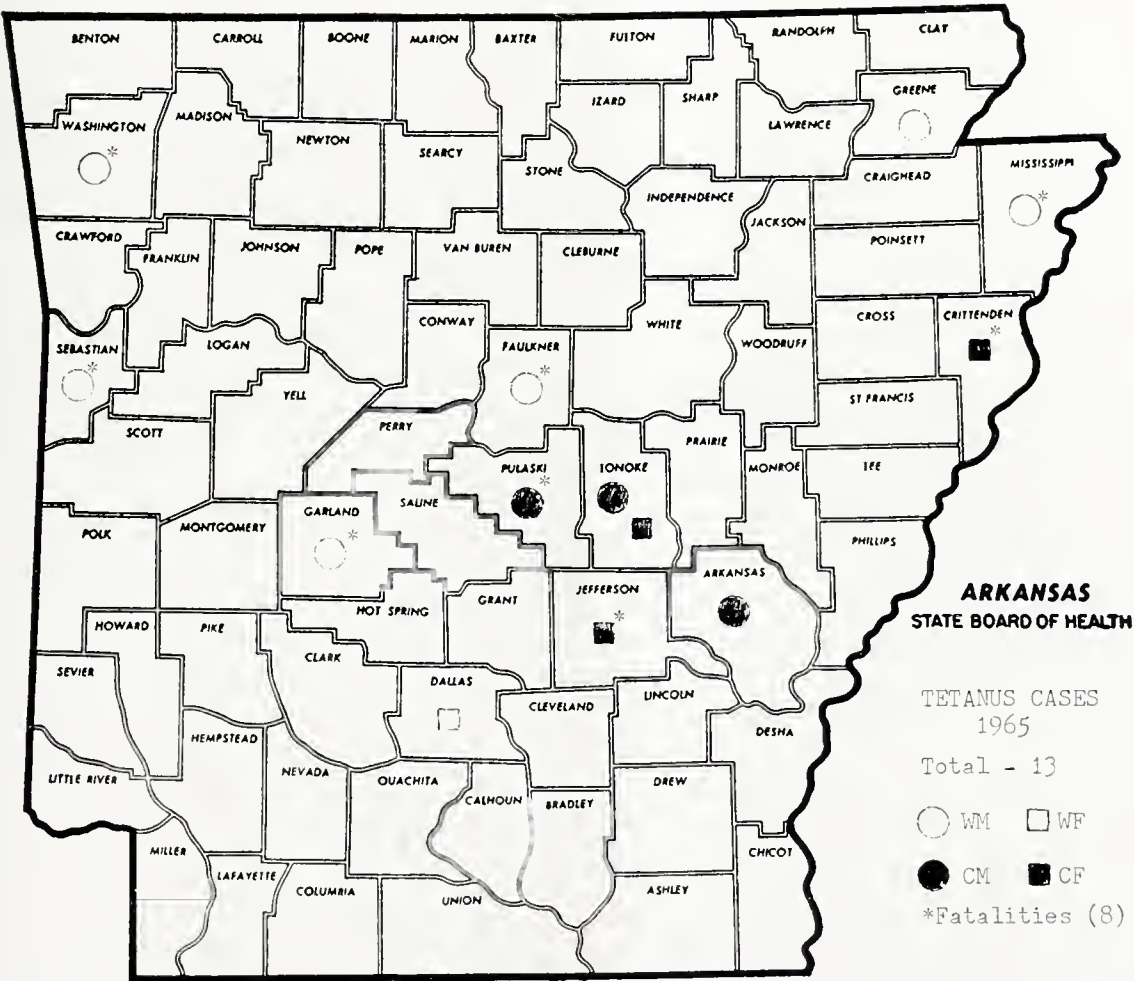
A word of caution is needed for those depending on homologous serum antitoxin, it is second best at most. It is expensive and may not always be available thus reverting back to heterologous serum antitoxin with all its disadvantages so familiar to those physicians that have been forced to rely on it.

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REPORTED TETANUS CASES—1965

Case No.	County	Age	Sex	Race	Died	Source of Infection	Immunization Status
1	Crittenden	6 days	F	C	X	Neonatal	unimmunized
2	Mississippi	2 yrs.	M	W	X	Splinter in foot	unimmunized
3	Lonoke	5 days	F	C		Neonatal	unimmunized
4	Arkansas	10 yrs.	M	C		Skinned arm	unimmunized
5	Pulaski	73 yrs.	M	C	X	Stepped on nail	unimmunized
6	Dallas	66 yrs.	F	W		Minor scratches	unimmunized
7	Faulkner	23 yrs.	M	W	X	Stepped on nail	unimmunized
8	Greene	22 yrs.	M	W		unknown	unimmunized
9	Jefferson	67 yrs.	F	C	X	Stepped on nail	unimmunized
10	Lonoke	8 yrs.	M	C		Stepped on nail	unimmunized
11	Garland	67 yrs.	M	W	X	Sore on toe (pus)	unimmunized
12	Wash	50 yrs.	M	W	X	Toe cut by lawnmower	Primary series at age of 26 with booster 3-5 yrs. ago
13	Sebastian	80 yrs.	M	W	X	No injury found	unimmunized



Division of Communicable Disease Control



EDITORIAL

Blood Pressure and Toxemia of Pregnancy

Alfred Kahn, Jr., M.D.

“Circulation,” the publication of The American Heart Association has published a supplemental issue in August, 1964, entitled “Blood Pressure and Toxemia of Pregnancy.” It is divided into three categories: general considerations on vascular reactivity, biology of acute hypertension associated with pregnancy and clinical aspects of hypertension of pregnancy, and its relationship to hypertensive vascular disease.

In the first general category is an extremely interesting paper by Hollander, Yagi, and Kramsch. This paper examines the *in vitro* effects of vasopressor agents on the metabolism of the vascular wall. It was felt that changes in the synthesis of acid mucopolysaccharides which are the principal ground substance of the vessel wall might throw some light on high blood pressure. This was tested *in vitro* and it was found that nor adrenalin and adrenalin inhibited the synthesis of lipids and acid mucopolysaccharides; whereas angiotensin did not. From this it was postulated that denervated arterial wall could not bind the catecholamines and thus inactivate them; hypertension might result from an accumulation of catecholamines in the arterioles due to insufficient tissue binding.

Also in the field of vascular reactivity was an article by Dahl, Heine, and Tassinari, studying the effects of excessive salt ingestion on a strain of mice that develops high blood pressure after excessive salt intake and in another strain which did not develop high blood pressure. The studies indicated that innate vascular hyperreactivity preceded the onset of hypertension, and that salt did not seem to influence vascular reactivity.

In an article on vascular reactivity Kolff, Nakamoto, Poutasse, Straffon, and Fibueroa reported

on the effect of bilateral nephrectomy and kidney transplantation on hypertension in man. In studying their cases of high blood pressure due to kidney disease two components were noted: renal and renoprival. Where renal hypertension was dominant, control of the high blood pressure with salt and water restriction is difficult. If a nephrectomy is performed, salt and water restriction is very helpful. Cure of the renoprival element has required a kidney graft. Grafts were discussed in light of multiple grafts and rejection phenomena.

In the group of papers pertaining to the biology of acute hypertension associated with pregnancy, McCartney reviews the pathology of acute hypertension of pregnancy. McCartney found a pathognomic lesion of eclampsia only in the renal glomeruli. This lesion was found using electron microscopy on material obtained by renal biopsy in some but not all eclampsia cases; the changes are reversible and in the endothelial cells. The most interesting fact in this study was that the hypertension of pregnancy is a manifestation of a number of disorders; for example, 25% of 63 primiparas who had eclampsia did not have the typical lesion and chronic renal disease lesions were found in 30% of 214 pregnant patients with high blood pressure.

Altchek described in detail the pathognomic changes of toxemia seen in a series of biopsies taken from 100 patients. The initial change is swelling of the endothelial cell cytoplasm. The second change, which appears later, is an amorphous deposit between the basement membrane and the endothelial cytoplasm. The third and final change is an increase in the cytoplasmic mass and number of the intercapillary cells. The

lesion accounts for the decreased glomerular filtration rate of toxemia. Altchek feels that in the absence of the lesion toxemia is not present.

Assali, Holm, and Parker have studied the systemic and regional alterations in the vascular tree in toxemia. The cardiac output in toxemia is the same as in normal pregnant women, but the peripheral resistance is elevated in the kidney renal plasma flow and glomerular filtration rate are reduced; renal vascular resistance is increased in the afferent segment. In the brain cerebral blood flow and oxygen consumption were unchanged except that with convulsions these values were reduced. The uteroplacental circulation is believed, on the basis of a few experiments, to be reduced but this is still speculative; their experiments on animals do not prove the reduction in circulation causes toxemia.

The last section of this issue deals with the clinical aspects of the hypertension of pregnancy and its relationship to hypertensive vascular disease. Finnerty commenting in this section, points out the relative rarity of pure toxemia as a cause of high blood pressure in pregnancy; it was only 6%. Clinically toxemia was diagnosed when the retinal arteries showed spasm without retinopathy and the urinalysis showed albuminuria only. The toxemia process was divided into two phases: Sodium retention and sodium retention plus generalized vasoconstriction. Prompt treatment of the sodium retention by diuretics as thiazides thus seems to be the most effective means of treating the first phase and it will often prevent development of the second phase. If the patient is quite ill, vasodilators should also be administered and diazoxide intravenously is suggested.

McKay presents evidence that shock, changed hemostasis, focal tissue damage, retinal detachment, placental separation, renal failure, hypopituitarism, and bilateral renal cortical necrosis are the result massive disseminated intravascular coagulation. In preeclampsia, low grade coagula-

tion may occur; platelets may be partially responsible.

The long range incidence of and the clinical relationship of toxemia to hypertension are presented by Tillman. His conclusions are (1) The presence of hypertensive vascular disease is usually unsuspected or unrecognized before pregnancy because blood pressure values of early hypertensive disease are labile and minimally elevated. (2) Established hypertension follows a variable course in pregnancy and its behavior may mimic the signs of an acute toxemia. (3) An acute toxemia may be superimposed on hypertensive disease. (4) Hypertension found after either normal pregnancy or toxemia of pregnancy probably existed before the onset of pregnancy. (5) Such hypertension follows the characteristic course of the hypertension of hypertensive cardio vascular disease.

Lastly, Tobian outlines some similarities between toxemia and experimental hypertension. The author in speculating about this topic states that the similarities between DOCA hypertension and toxemia lead him to the hypothesis that toxemia may be due to an abnormally high level of an abnormal placental steroid in the extracellular fluid; this could be due to oversecretion or deficient removal. For hypertensive toxemia to occur; the patient would have to have a deficient degree of anti-hypertensive action—this anti-hypertensive action could be a chemical, a defective response, etc. — which all people have to a varying degree. This abnormal steroid would cause sodium retention by its action on the kidney. This in turn would lead to high blood pressure if there was a deficiency anti-hypertensive action in the kidney; however, regardless of high blood pressure, edema would occur. Salt administration would aggravate this. Edema would result from glomerular injury and loss of albumen.

This is a most worthwhile and stimulating supplement.



MEDICINE IN THE



FULL TIME MEDICAL SCHOOL FACULTY

The number of full-time faculty in U.S. medical schools increased from 3,933 in 1950-51 to 15,514 in 1964-65. While budgeted faculty vacancies have increased numerically, they account for a quite constant 6 per cent of total full-time faculty in each year. If the 6 per cent figure of budgeted faculty vacancies is accepted as a normal turnover rate, the overall supply of faculty has apparently kept up with demand with the exception of shortages in selected areas such as anatomy and pathology. However, anticipated increases in the demand for full-time medical faculty may present difficulties in meeting future needs.

In a study of the trends in medical school faculties made by the AAMC in 1960, it was predicted that if student-faculty ratios increased between 1961 and 1970 at a rate similar to that occurring between 1951 and 1960, a total of approximately 24,000 full-time faculty members could be anticipated in 1970. Based on the rate of full-time faculty increase between 1960 and 1965, it is estimated that a total of approximately 23,000 full-time faculty members could be anticipated in 1970. A projection to 1975 on the same basis would indicate the need of 28,000 full-time faculty members.

These projections do not take into consideration the new medical schools which will be coming into operation during this period or the likelihood of expansion necessary to meet such developing increased service needs as the Cancer, Heart, and Stroke Centers. With the addition of the number of presently proposed new schools to be in operation by 1975 and assuming a level of faculty staffing comparable to existing schools, it can be further estimated that the number of full-time faculty will approximate two times the number in 1965 or approximately 31,000.

While all of these estimated projections are of necessity rather crude, they do serve to provide some indication of the magnitude of the problems facing the medical community.

Dr. Choate on Third Tour in Southeast Asia

Captain (Doctor) Philip R. Choate, whose parents, Dr. and Mrs. Hoyt L. Choate reside in Little Rock, Arkansas, is now on his third tour in Southeast Asia as a member of an Air Commando advisor-training team to the government of Thailand. This is his second deployment as flight surgeon of detachments of the 1st Air Commando Wing on advisory-training missions to Thailand at the request of that nation's government. Prior to his first tour of duty in Thailand last year, he served 14 months on a similar mission in South Vietnam.

THE MONTH IN WASHINGTON

Washington, D. C. — The Department of Health, Education and Welfare has issued strict guidelines prohibiting racial segregation in hospitals receiving money from the federal government.

The department said in a policy statement that schools, hospitals and nursing homes must adhere to the guidelines to continue receiving federal funds under the Civil Rights Act of 1964.

Surgeon General William H. Stewart of the Public Health Service said more than 10,000 hospitals receiving federal funds had been sent new rules and compliance reports. He said such hospitals must not separate or discriminate on the basis of race or national origin in the care and treatment of patients.

Hospitals are being asked "whether patients are assigned to all rooms and facilities without regard to race, color, or national origin; whether all persons are allowed to use entrances, admission offices, waiting rooms, dining areas and cafeterias, toilets and lavatories, and other service facilities; whether the hospital accepts and approves applications for staff privileges and training without regard to race, color, or national origin; and other similar questions," according to the HEW statement. "An up-to-date patient census by race must be indicated on the questionnaire, as must a break-

down by race of physicians holding staff privileges.

"If evidence of discriminatory practice is indicated in the returned questionnaire, the specific areas of failure to comply will be pointed out. The hospital will then be given an opportunity to eliminate its discriminatory practices as quickly as possible. Where discrimination persists, the hospital will be excluded from any new federal assistance programs, such as Health Insurance for the Aged (Medicare), which begins on July 1. When negotiations fail to achieve compliance, steps will be taken . . . to terminate present assistance, or compliance will be secured through enforcement by the courts.

The Office of Equal Health Opportunity is administratively located in the Office of the Surgeon General and will be headed by Mr. Robert M. Nash. It will employ a staff with special competencies and responsibilities in review and investigation of complaints, evaluation of complaint and compliance reports, public information activities, fiscal and statistical analysis, compliance negotiations, and development of recommendations for corrective action within the law, and will include experts in such areas as law, contracts, professional education and project

grants, hospitals and nursing homes, and state and local health agencies.

An Office of Equal Health Opportunity has been set up by the PHS to monitor compliance with the Civil Rights law on behalf of all federal agencies in the health and medical fields.

"The Public Health Service intends to exert every effort to see that discrimination with respect to race, color or national origin is halted in all health and medical institutions and agencies receiving federal assistance," Stewart said.

* * *

The American Medical Association supports a legislative proposal for the federal licensing of dealers in research cats and dogs to protect such pets from theft and insure their humane care.

The AMA opposes licensing of research laboratories themselves and sees no need to include other research animals in such a federal program.

In a statement submitted to House Agriculture Committee when it was considering such legislation, the AMA said:

" . . . We firmly agree that any improper practices which do exist in the procurement of experimental animals should be corrected . . .

"The AMA supports the purposes of the provisions of the bill which afford protection to

ANSWER—Electrocardiogram of the Month

INTERPRETATION:

RATE: 80 RHYTHM: Sinus

PR: .16 sec. QRS: .07 sec. QT: .36 sec.

ABNORMAL: T inversion most leads

COMMENT: Tracing shows nonspecific T abnormalities generalized and evidence of increased voltage of left ventricular hypertrophy. This form of primary myocardial disease may show widespread E.C.G. abnormalities.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Lithopedion

X-RAY FINDINGS: A rounded calcified mass within the pelvis contains recognizable bones of the fetal extremities, as well as portions of the skull. A hysterosalpinogram demonstrated that these structures were outside the uterus. Presumably the pregnancy was ectopic, in a fallopian tube or abdomen; fetal death occurred followed by calcification.

owners of cats and dogs from the practice of pet stealing," the AMA statement said. "The Association urges, however, that the provisions with respect to the licensing of research facilities (and the setting of standards), be deleted. We further urge that the bill be restricted to cats and dogs, and not include other vertebrate animals."

The AMA said there is no need for the government to supervise laboratories because "the standards of animal care in research facilities in the United States are generally high" and voluntary efforts "are effectively accomplishing the goal of maintaining good animal care in the laboratory."

As for protecting research mice, rats, guinea pigs, etc., from theft, the AMA pointed out that they rarely are pets and, with few exceptions, are obtained from a few national breeding laboratories which supply genetically pure inbred strains.

* * *

The Veterans Administration is planning a three-state test of a simplified method of administering its so-called "home town" program under which eligible veterans are treated by local physicians on a fee-for-service basis.

Alabama, Indiana and Colorado were selected for pilot programs beginning next July 1. VA officials are hopeful that they will prove so successful in four or five months that the simplified method can be used nationwide.

Under the experimental program, veterans entitled to treatment on a fee basis will receive an identification card stating the conditions for which he may be treated. Veterans then may seek treatment when they need it from doctors of individual choice. Doctors will treat the patient to the extent they believe is needed and bill the VA for "customary and usual" fees. Physicians will be asked to submit medical reports only when there is a significant change in a veteran's service-connected condition. A schedule of maximum fees will be maintained confidentially, by agreement with the state medical society, and fees in excess of the maximum will be reduced. If the cost of continuous treatment is expected to exceed \$30.00 per month, prior authorization from the VA will be required.

* * *

President Johnson is seeking Congressional approval of a \$1 billion expansion of federal domestic health programs.

In a domestic health message to Congress, Johnson estimated that such programs, after the expansion, would cost the federal government \$4.67 billion in the 1967 fiscal year beginning next July 1. In addition, medicare expenditures of social security tax funds are estimated at more than \$3 billion for the year.

Johnson announced plans for:

- reorganization of health functions of the Department of Health, Education and Welfare.

- federal grants "to enable states and communities to plan the better use of manpower, facilities, and financial resources for comprehensive health services."

- programs to strengthen the nation's system of health care.

- a three-year program of federal aid in training of more health workers.

- an increase in medical research.

- additional steps to meet specific health problems such as alcoholism, birth control, mental retardation and nutrition.

Johnson also said that in fiscal 1968 he wants to start "new state formula grants for comprehensive health services" and additional grants to states, communities and hospitals to meet special health problems.

"To strengthen the nation's system of health care," the President proposed federal aid in modernization of obsolete hospitals, aid to group practice clinics, and research and demonstration projects "in the organization, financing, utilization and delivery of health services."

But the program to provide government financing for group practice medical and dental centers ran into trouble in its first congressional test this year.

Wilbur J. Cohen, Assistant HEW Secretary, acknowledged under sharp questioning before a House Housing Subcommittee that no figures are available—since 1959—on how many group practice clinics have been financed through regular bank loans. Cohen testified that in 1946 there were 400 clinics for group practice and "nearly 2,000" now based on a projection of a 1959 figure study.

Johnson announced that HEW Secretary John W. Gardner had been directed to:

- "appoint an Advisory Committee on Alcoholism;

- "establish in the Public Health Service a

center for research on the cause, prevention, control and treatment of alcoholism;

“—develop an education program in order to foster public understanding based on scientific fact;

“—work with public and private agencies on the state and local level include this disease in comprehensive health programs.”

The President said administration plans call for “a sizable increase” in expenditures for birth control research, training and services by the National Institute of Child Health and Human Development, HEW’s Children Bureau and the Office of Economic Opportunity (poverty program).

THINGS TO COME



The Mile High City, Denver, Colorado, is once again the site of the 20th Annual Rocky Mountain Cancer Conference, July 15-16, at the Brown Palace Hotel. The two-day Conference will feature some of the nation’s most distinguished speakers on the subject of cancer.

RESOLUTIONS



Be it resolved that all members of the Garland County-Hot Springs Medical Society, the Medical Staff of St. Joseph’s Hospital, and the Medical Staff of Ouachita General Hospital jointly proclaim their sorrow at the passing of their confrere and friend, Dr. D. C. Lee.

Dr. Lee was a veteran of World War I, and was engaged in the practice of his profession for over a half century. He was highly regarded and widely recognized in his field of pathology and bacteriology, while at the same time his genuine interest in his patients exemplified the better qualities of the practicing physician.

He was a kind and generous man and evi-

denced great love for his family, his profession, and his legion of friends.

Be it further resolved that this resolution be incorporated in the minutes and that copies be furnished the family and the press.

W. Martin Eisele, M.D., President,
Garland County Medical Society

James H. French, M.D., Vice-President
St. Joseph’s Hospital Medical Staff

M. R. Springer, Jr., M.D., President,
Ouachita General Hospital Medical Staff

Gaston A. Hebert, M.D.

RESOLUTION

WHEREAS Almighty God, the gracious Provident Father of us all, in his wisdom and goodness has seen fit to remove from this world, and all his earthly labors, a most wonderful physician and surgeon, a very dear friend of mankind, and a very near and dear associate and member of the Arkansas State Hospital Board of Control, Dr. Joe F. Shuffield.

WHEREAS Dr. Joe (as we affectionately knew him) has served so ably and efficiently in directing the affairs of the State Hospital, and by his untiring efforts and devotion to duty has seen the Arkansas State Hospital grow and develop into one of the best, if not the best hospital of its kind to be found anywhere.

THEREFORE BE IT RESOLVED The Board of Control of the Arkansas State Hospital, assembled on this 19th day of February 1966; that we are deeply grieved by the passing of our dearly beloved, Dr. Joe, and we will greatly miss him in his work and leadership at the hospital and elsewhere. We knew of his firmness, his gentleness, his devotion to duty, his love for his work, and his love for his family and friends throughout the entire state of Arkansas.

BE IT FURTHER RESOLVED That we extend to his good wife, Mrs. Gladys Shuffield and his children our profound sympathy in the great loss they have sustained, and we assure these loved ones that we share the loss and grief that his passing brings.

We further petition our Heavenly Father to sustain them now and to smile upon them through their remaining days upon this earth,

and may we share with them the hope which he had for a world better than the one in which we live, where there will be no more heartaches, no more sorrow, no more pain and anguish, and where we can all be reunited around the great throne of God never to be separated any more.

BE IT FURTHER RESOLVED That a copy of this resolution be spread on the records of the Arkansas State Hospital and a copy be sent to

his good wife, Mrs. Gladys Shuffield and his children.

STATE HOSPITAL BOARD OF CONTROL

Robert L. Rogers, II, Vice-Chairman
Olen Fullerton, Secretary
R. C. Dickinson, M.D., Member
Lee F. Tucker, Member



PERSONAL AND NEWS ITEMS

Dr. Norton Guest Speaker

Dr. Joe Norton of Little Rock, associate clinical professor of radiology, University of Arkansas Medical Center, was a guest speaker at a University of Arkansas School of Medicine postgraduate symposium on surgery held in Hot Springs in March.

Dr. Pehrson Consultant

Dr. Nils C. Pehrson of Little Rock has been made a member of Mercy Hospital's staff in Brinkley as a consultant in pathology. He will spend one day each month at Mercy Hospital.

Drs. Harris and Wilson in AAGP

Dr. Willie R. Harris of Newport and Dr. Joe B. Wilson of Harrison have been elected to active membership in the American Academy of General Practice.

Dr. Chudy Is Speaker

Dr. Amail Chudy of North Little Rock was guest speaker at the monthly meeting of the Ministerial Alliance at Memorial Hospital in March.

Dr. Hudson Honored

A reception and open house was held in March at Harrison honoring Dr. W. A. Hudson who was celebrating his 75th birthday. Dr. Hudson has a distinguished record in medical service, especially in the field of chest diseases and thoracic surgery.

Drs. Mason, Thompson and Workman to Be Installed

Dr. Joe N. Mason of Fort Smith, Dr. Thomas P. Thompson of Texarkana, and Dr. W. W. Workman of Blytheville were installed as Fellows of the American College of Obstetricians and Gynecologists at its Annual Meeting, May 2-5, in Chicago.

Dr. Murphy's Son Receives Fellowship

G. D. Murphy, III, a junior at the University of Arkansas School of Medicine, has been awarded a fellowship which will permit him to assist for eleven weeks this summer in the operation of a mobile medical program carried out by two missionaries in East Africa. He is the son of Dr. and Mrs. Garland D. Murphy, Jr. of El Dorado.

Dr. Eisele Re-elected

Dr. W. Martin Eisele of Hot Springs has been re-elected president of Forty for the Future at the annual meeting of the board of directors. Dr. M. R. Springer was appointed to the membership committee.

Dr. Norton to Chicago

Dr. Joe Norton of Little Rock attended the meeting of the AMA Board of Trustees' Committee on Medicine and Religion in Chicago, April 28-29.

Drs. Evans and Slaughter Lease Hospital

A non-profit organization called Health Enterprises, Inc., composed of five Batesville men, including Dr. Gilbert Evans and Dr. Bob Slaughter, has leased the Van Buren County Memorial Hospital and Nursing Home and will operate it.

Dr. Warden Rescued

Dr. J. R. Warden of Little Rock was rescued from an Arkansas River sandbar in February after being stranded for several hours in chilly weather. His speedboat became grounded and he was rescued about eight miles northwest of Morrilton at the foot of Petit Jean Mountain.

Dr. Rodgers Is Diplomate

Dr. Porter R. Rodgers, Jr., of Searcy has been notified that he is now a diplomate of the American Board of Surgery.

Dr. Wheat Speaks

Dr. Ed Wheat of Springdale spoke to the Hope Ministerial Alliance Union Meeting at the First Baptist Church at Hope in February.

Dr. Saltzman in Charge

Dr. Ben Saltzman of Mountain Home, chairman of the Society's Committee on Rural Health, presided at sessions of the Arkansas Rural Health Conference in Little Rock on March 10th. The Society presented plaques to winners of the Rural

Community Improvement contest at a banquet held in connection with the conference.



OBITUARY

Dr. D. C. Lee

Dr. D. C. Lee of Hot Springs, Garland County Coroner since 1948, died March 4, 1966, at the age of 73. He was born May 14, 1892 in Leonard, Texas. Dr. Lee was graduated from high school at Snyder, Texas and attended the University of Arkansas. He received his M.D. degree from the University of Arkansas School of Medicine in 1914. During World War I, he served with the Army Medical Corps and was stationed in Liverpool, England. He was a member of First Presbyterian Church, a Master Mason, a Shriner, a Fellow in the American College of Clinical Pathologists and the American College of Physicians, and a member of the Garland County Medical Society, the Arkansas Medical Society and the American Medical Association. In 1915 Dr. Lee married the former Alice Louise Roberts and last year the couple celebrated their Golden Wedding anniversary. He is survived by his widow; a son, Dr. W. R. Lee of Hot Springs, and a daughter.



PROCEEDINGS OF SOCIETIES

Craighead-Poinsett

The Craighead-Poinsett County Medical Society has approved plans for conducting a special clinic on Maternity and Family Planning. A program for chronically ill patients also has been approved. Dr. Don Neblett of Jonesboro is president of the county society.

Pope-Yell

Dr. Charles Wilkins of Russellville was the speaker at a March meeting of the Pope-Yell County Medical Society. He explained to the group the details of the Medicare Program and how it would be handled through their local offices.

Pulaski

The Pulaski County Medical Society placed newspaper advertising in March urging people over 65 to sign up for the supplementary insurance program under Social Security. An editorial in the March 8th issue of the *Arkansas Gazette* commended the Society for its action.



NEW MEMBERS

A new member of Mississippi County Medical Society is DR. MAYO F. GO. A native of Canton, China, she received her preliminary education at Memphis, Tennessee, and she was graduated from the University of Tennessee School of Medicine in 1962. Dr. Go is a general practitioner and her office is located at 2004 West Main Street in Blytheville, Arkansas.

DR. CHARLES S. NORTHUM is a new member of Greene-Clay County Medical Society. He was born at Fort Smith, Arkansas, and he received his preliminary education at Tulane University in New Orleans, Louisiana. He received his M.D. degree from the University of Arkansas School of Medicine in 1962. He has served in the U.S. Air Force. Dr. Northum's office is located at 425 West Jackson in Piggott, Arkansas. He is a general practitioner.

Hot Spring County Medical Society announces that DR. JOHN ALVIN VAUGHAN has been added to its roster of members. A native of Malvern, he received his pre-med from the University of Arkansas and Henderson State College. He graduated from the University of Arkansas Medical School in 1961, and he interned at the United States Naval Hospital in Bethesda, Maryland. He served in the U.S. Navy from 1961 until 1965. Dr.

Vaughan is a general practitioner and his office address is 115 East Highland, Malvern, Arkansas.

DR. ANN GRAVES ROBBINS POINDEXTER is a new member of the Faulkner County Medical Society. She is a native of Gentry, Arkansas, and she received her preliminary education from Hendrix College. She received her M.D. degree from the University of Tennessee Medical School in 1957 and she interned at City of Memphis Hospitals. She was an instructor at Emory University School of Medicine from 1962 until 1965. Her office address is 919 Locust in Conway, Arkansas. Dr. Poindexter's specialty is pediatric consultation.

Faulkner County Medical Society announces that DR. DOUGLAS ANDREW POINDEXTER is a new member. He was born at Chattanooga, Tennessee, and received his pre-med at the University of Chattanooga. In 1957 he was graduated from the University of Tennessee Medical School and he served his internship at John Gaston Hospital in Memphis. He served in the U.S. Public Health Service from 1959 until 1961. Dr. Poindexter's office address is 919 Locust in Conway, Arkansas. His specialty is general surgery.

DR. JOHN FISHER GRATZ, JR. is a new member of Mississippi County Medical Society. A native of Memphis, Tennessee, he received his preliminary education from Southwestern at Memphis; Yale University, and the University of California at Berkeley. He graduated from the University of Tennessee School of Medicine in 1955. He interned at Methodist Hospital in Memphis. Dr. Gratz' specialty is radiology and his office address is 3010 Walnut Grove Road, Memphis, Tenn.

DR. WILLIAM ROSS SCURLOCK is a new member of Union County Medical Society. He is a native of Waldo, Arkansas, and he received his preliminary education from Hendrix College in Conway. In 1960 he was graduated from the University of Arkansas School of Medicine and he interned at Confederate Memorial Hospital, Shreveport, Louisiana. Dr. Scurlock's address is 412 North Washington in El Dorado, Arkansas. He is a surgeon.

A new member of Clark County Medical So-

ciety is DR. DAVID G. STEVENS. He was born at Gladewater, Texas, and received his pre-med from Baylor University and North Texas State College. He was graduated from the University of Texas Medical Branch in 1959 and he interned at Hermann Hospital in Houston, Texas. He practiced in Houston from 1964 until 1965. Dr. Stevens is a radiologist and his office is at Clark County Memorial Hospital in Arkadelphia.

Conway County Medical Society announces that DR. CHARLES V. SNIDER has been added to its roster of members. He is a native of Knoxville, Tennessee, and he received his preliminary education from the University of Tennessee. He received his M.D. degree from the University of Arkansas School of Medicine in 1962. He interned at Baptist Memorial Hospital in Memphis, Tennessee, and he served two years active duty with the U.S. Public Health Service and the U.S. Coast Guard. Dr. Snider is a general practitioner and his office address is 200 South Moose in Morrilton, Arkansas.

DR. PAUL L. MAHONEY, JR. is a new member of Boone County Medical Society. A native of Little Rock, he attended Little Rock Junior College, the University of North Carolina, and Hendrix College for his preliminary education. He was graduated from the University of Arkansas School of Medicine in 1951 and he interned at St. Vincent's Hospital in Jacksonville, Florida. He served in the U.S. Marine Corps for three years. Dr. Mahoney practiced in Jacksonville, Florida, for nine years, and his office is now at 707 North Vine in Harrison, Arkansas. His specialty is obstetrics-gynecology.

A new member of the Sebastian County Medical Society is DR. EDWARD E. CLEMMONS. He was born at Columbus, Mississippi, and received his pre-med from Southwestern Louisiana Institute and Louisiana State University. He received his M.D. degree in 1958 from Louisiana State University School of Medicine. He served his internship at Southern Baptist Hospital in New Orleans, and he practiced for one year at Metairie, Louisiana. Dr. Clemmons' specialty is general and thoracic surgery and he is affiliated with the Cooper Clinic in Fort Smith, Arkansas.

DR. DOUGLAS EUGENE YOUNG is a new

member of the Pulaski County Medical Society. A native of Fayetteville, Arkansas, he received his preliminary education from the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1958; he interned at the University of Arkansas Medical Center. He served in the U. S. Army from 1963 until 1965. Dr. Young is now at the University of Arkansas Medical Center and his specialty is pathology.

Pulaski County Medical Society announces that DR. BERNARD WAYNE THOMPSON is a new member. He was born at Bakersfield, California, and received his preliminary education from the University of Notre Dame. He received his M.D. degree from the University of Arkansas School of Medicine in 1949 and he interned at Highland-Alameda Hospital in Oakland, California. He now has his office at 500 South University. Dr. Thompson's specialty is surgery.

A new member of Pulaski County Medical Society is DR. WAYNE BRYANT GLENN, a native of Lynn, Arkansas. He attended Arkansas State College before enrolling at the University of Arkansas School of Medicine, from which he received his M.D. degree in 1958. He then interned at the University of Arkansas Medical Center. He served in the U.S. Navy from 1961 until 1963. Dr. Glenn is an anesthesiologist and he is at the University of Arkansas Medical Center.

DR. PETER JOHN IRWIN is a new member of the Sebastian County Medical Society. He was born at East Saint Louis, Illinois, and received his preliminary education from Saint Louis University. In 1959 he was graduated from the Saint Louis University School of Medicine; he interned at Creighton Memorial St. Joseph Hospital in Omaha, Nebraska. Dr. Irwin is an orthopedic surgeon and he is with the Holt-Krock Clinic in Fort Smith, Arkansas.

DR. ROBERT H. WEAVER is a new member of the Benton County Medical Society. A native of Portland, Oregon, he attended Walla Walla College before enrolling at Loma Linda University School of Medicine. He received his M.D. degree from there in 1962 and he interned at Deaconess Hospital in Spokane, Washington.

He served in the U.S. Army from 1963 until 1965. Dr. Weaver is a general practitioner and his address is Gentry, Arkansas.

Greene-Clay County Medical Society announces that DR. JERRY L. MUSE has been added to its roster of members. He was born at Clarkton, Missouri, and he received his preliminary education from Texas Christian University. He received his M.D. degree from the University of Arkansas School of Medicine in 1962 and he interned at Erlanger Hospital in Chattanooga, Tennessee. He served in the U.S. Army for two years. Dr. Muse's address is Piggott Hospital in Piggott, Arkansas. He is a general practitioner.

A new member of Logan County Medical Society is DR. DERWOOD F. FACUNDUS, a native of Monroe, Louisiana. He received his pre-med from Northeastern Louisiana State College and he received his M.D. degree from Louisiana State University School of Medicine in 1964. He interned at Denver General Hospital and he has served two years in the U.S. Army. Dr. Facundus is a general practitioner and his office address is 111 West Third Street in Booneville, Arkansas.

Washington County Medical Society announces that DR. SPENCER DELANCEY ALBRIGHT, III, is a new member. He was born at Chicago, Illinois, and received his preliminary education from the University of Richmond, Richmond, Virginia, and Arkansas A & M College in Monticello. He was graduated from the Medical College of Virginia in 1959 and he interned at Mary Hitchcock Memorial Hospital of the Dartmouth Medical School at Hanover, New Hampshire. His office is located at 618 West Dickson in Fayetteville, Arkansas. Dr. Albright's specialty is dermatology.

DR. TOM PHILLIP COKER is a new member of Washington County Medical Society. A native of Stuttgart, Arkansas, he received his preliminary education from the University of Arkansas. He received his M.D. degree in 1956 from the University of Tennessee Medical School and he interned at the University Hospital, Ann Arbor, Michigan. He practiced at North Carolina Baptist Hospital and Bowman Gray School of Medicine, Winston-Salem, North Carolina, from 1961 until 1965. Dr. Coker's specialty is ortho-

paedic surgery and his office address is 1673 North College Street, Fayetteville, Arkansas.

DR. EDWIN WHITESIDE is a new member of Washington County Medical Society. He is a native of Bentonville, Arkansas, and he obtained his pre-med from the University of Arkansas. He was graduated from the University of Arkansas School of Medicine in 1961 and he interned at Lackland Air Force Base Hospital. He has served eleven years in the Air Force. Dr. Whiteside's specialty is allergy and his office address is 207 East Dickson, Fayetteville, Arkansas.

A new member of Pope-Yell Medical Society is DR. GEORGE EDWARD MALONE, a native of London, Arkansas. His pre-med was obtained from Hendrix College and from Arkansas Technical College. He received his M.D. degree from the University of Arkansas School of Medicine in 1961 and he interned at Hillcrest Medical Center in Tulsa, Oklahoma. He served in the U.S. Air Force from 1961 until 1965. Dr. Malone is a general practitioner and his address is 733 West Main, Atkins, Arkansas.

Pope-Yell County Medical Society announces that DR. STANLEY D. TEETER is a new member. He was born at Conway, Arkansas, and he received his preliminary education from Arkansas Polytechnic College in Russellville. He was graduated from the University of Arkansas School of Medicine in 1960 and he interned at the U.S. Naval Hospital in San Diego, California. He served in the U.S. Navy from 1960 until 1965. Dr. Teeter is now associated with the Millard-Henry Clinic at 511 West Main Street in Russellville, Arkansas. He is a general practitioner.

DR. GEORGE O. THOMASSON is a new member of Pope-Yell County Medical Society. He is a native of Davenport, Iowa, and he received his pre-med from North Texas State University. He received his M.D. degree from the University of Texas Southwestern Medical School in 1962 and he interned at the University of Arkansas Medical Center. He served in the U.S. Public Health Service from 1962 until 1965. Dr. Thomasson is a general practitioner and his office address is 110 South El Paso, Russellville, Arkansas.

Pulaski County Medical Society announces that

DR. JOHN E. ALLEN, JR. has been added to its roster of members. He was born at Santa Paula, California, and he obtained his preliminary education from Indiana University and from the University of Louisville, Louisville, Kentucky. He was graduated from the University of Louisville in 1956 with an M.D. degree. He interned at Jefferson Davis Hospital in Houston, Texas, and he served in the U.S. Navy from 1958 until 1960. Dr. Allen's specialty is cardiovascular and general surgery and his office address is 5324 West Markham, Little Rock, Arkansas.

Pulaski County Medical Society announces that DR. STACY RANDOLPH STEPHENS is a new member. A native of Fort Smith, Arkansas, he received his pre-med from the University of Arkansas. He received his M.D. degree in 1958 from Johns Hopkins University in Baltimore, Maryland, and he interned at the Johns-Hopkins Hospital. He served in the U.S. Army from 1963 until 1965. Dr. Stephens is now at the University of Arkansas Medical Center and his specialty is obstetrics-gynecology.

A new member of Saline County Medical Society is DR. EDWARD W. CROW. He is a native of Little Rock and he received his preliminary education from the University of Arkansas. He was graduated from the University of Tennessee Medical School in 1930. He is a retired U.S. Army officer and he was associated with the Arkansas State Hospital in Little Rock from 1951 until 1963. Dr. Crow's specialty is psychiatry and he is now at the Benton unit of the Arkansas State Hospital.

DR. MICHAEL D. SIMMONS is a new member of the Saline County Medical Society. A native of Hamilton, Iowa, he received his pre-med from Union College in Lincoln, Nebraska, and from Washington University of St. Louis. He received his M.D. degree from the University of Missouri School of Medicine in 1964 and he interned at Porter Memorial Hospital in Denver, Colorado. He served in the U.S. Army from 1954 until 1956. Dr. Simmons is a general practitioner and he is practicing at Bryant, Arkansas.

Pulaski County Medical Society announces that DR. EDWIN NOWELL BARRON, JR. is a new member. He was born at Chicago, Illinois, and

he received his preliminary education from Hendrix College in Conway, Arkansas. He received his M.D. degree from the University of Arkansas Medical School in 1964 and he interned at the University of Arkansas Medical Center. He served in the U.S. Army from 1954 until 1962. Dr. Barron is a general practitioner and his address is 5008 Kavanaugh in Little Rock, Arkansas.



BOOK REVIEWS

CURRENT PEDIATRIC THERAPY 1966-1967, by Sydney S. Gellis, M.D., Professor and Chairman, Department of Pediatrics, Tufts University School of Medicine; Pediatrician-in-Chief, Boston Floating Hospital for Infants and Children, Tufts-New England Medical Center, Boston, and Benjamin M. Kagan, M.D., Director, Department of Pediatrics, Cedars of Lebanon Hospital, Division of Cedars-Sinai Medical Center, Professor of Pediatrics, University of California at Los Angeles, pp. 956, published by W. B. Saunders Company, Philadelphia & London, 1966.

THE CELL. Its Organelle and Inclusion, An Atlas of Fine Structure, by Don W. Fawcett, M.D., Hersey Professor of Anatomy, Harvard Medical School, illustrated, pp. 448, published by W. B. Saunders Company, Philadelphia and London, 1966.

Most physicians trained prior to World War II were taught conventional histology using the light microscope. The upsurge in electron microscopy has brought considerable bewilderment to the older physicians. This textbook is an atlas of the organelles inside the cell as visualized with the electron microscope. The book is really an atlas rather than a conventional text. Alternate pages consist of full page photographs with a paragraph or two describing the photograph. The book is extremely interesting and will have a strong appeal to not alone medical students but to all physicians not well acquainted with electron microscopy. It is heartily recommended. AK

DISORDERS OF CARBOHYDRATE METABOLISM IN INFANCY, Volume III in the Series MAJOR PROBLEMS IN CLINICAL PEDIATRICS, by Marvin Cornblath, M.D., Professor of Pediatrics, The University of Illinois College of Medicine, Chicago, and Robert Schwartz, M.D., Associate Professor of Pediatrics, Western Reserve University School of Medicine; Cleveland Metropolitan General Hospital, pp. 297, illustrated, published by W. B. Saunders Company, Philadelphia and London, 1966.

This is an extremely interesting book which is of great importance to the pediatrician but which is of general interest to the family physician and the internist. It discusses carbohydrate homeostasis. There is a chapter on the infant of the diabetic mother. There is a discussion of diabetes mellitus, glycogen metabolism and other disorders.

Of main interest to the reviewer was the section on hypoglycemic syndromes. This particular part of the book will be of interest to all physicians. This book is heartily recommended as worthwhile reading on the topic of carbohydrate metabolism. AK

DO NOT DESPAIR

Robert Watson, M.D.*

To the members of the Neurosurgical Society of America, our ladies, and our guests.

In giving me the privilege to speak to you at this time, you also give me the greatest honor I will ever know. The years I have spent in this Society have been pleasant, they have been productive, and they have been informative. Through my association with you in this Society, I feel I have become a more capable neurosurgeon, a more conservative physician, and a more learned man. I am fully cognizant of the many benefits I have gained through my association with each of you when seeking your counsel, your good judgment, and your companionship. I fully realize all that this Society has given me; I am indebted to you.

This association with you began with the first formal meeting of this Society held at the Ambassador East in Chicago in 1947. It is with pride that I can say that I have, without fail, attended each meeting since that time. Nineteen years of active membership in the Neurosurgical Society of America, and thirty years experience in the field of neurosurgery, permit me to be at this time a bit philosophical. In fact, to continue in the practice of neurosurgery for thirty years, one is forced, at times, to become very philosophical.

We are in the midst of a social revolution, and with it, we are entering into a new era in the practice of medicine. Revolutions are not necessarily of a violent character. This present one has been of insidious development.

The background of our present social revolution dates back to causes both economic and political, an aftermath certain to follow our industrial revolution of the Eighteenth and Nineteenth Centuries. This present social revolution is now well established; it has been in effect for more than thirty years; and to where it will lead, I dare not guess. Our actions as physicians can surely, in part, influence its direction.

Our present social revolution became apparent with the inauguration of Franklin D. Roosevelt in 1932. This revolution was certain to come about. At that time, our country was in the most serious state of depression we have ever known.

The inaugural crisis of 1932 was probably the greatest since Lincoln's inauguration in 1861. In 1932, banks were closing by the hundreds each week; one of every four able-bodied adults was unemployed; and men by the thousands were commandeering trains in their ride to Washington, protesting their destitute economic state. These were common sights. Many thought at that time that our whole economic system would collapse, and that likely Roosevelt would be our last elected president. However, in Roosevelt's presidential address of 1933, he stated, "This great nation will endure as it has always endured."

The first major legislative program in this revolution leading to our present welfare state came with the enactment in 1935 of the Social Security Act. Repeatedly, I must refer to this Social Security Act, because the continued enlargement of this law will soon, through Public Law 89-97, 89-239 and 89-290, have continuing influences throughout the whole of our lifetime and that of all children to follow.

Initially, back in 1935, this Social Security Act, as written at that time was, I feel, properly dictated by circumstances that then prevailed. However, time has brought about many justified criticisms of this welfare state. Each of you is so well aware how the Social Security Act, with its many expansions over the years, is making the mass of people so totally dependent on our government. You see these evidences in your practice each day; you are aware of them just as I am.

Unfortunately, we cannot expect any appreciable reversal in the attitudes of our people. Our presidents will continue to become more liberal. Few will vote for a conservative. Our leadership does not have the courage to face public resistance; instead, they follow a course of expediency, rather than one of courage. For the years ahead, we must expect more of the same, and this policy of our leadership will continue with our next president, and then those who follow him. Our people are accepting a philosophy by which they are willing to surrender their will to anyone who speaks with a voice that is persuasive enough to sway them. When government offers to relieve us of all our responsibilities, when it arranges

* Donaghey Building, Little Rock, Arkansas.

that others pay part or all of the cost of our food, of the education of our children, and of the costs of our illnesses, and of our retirement, government then takes away from us our freedoms. We do not seem to realize that a government strong enough to give us everything is also strong enough to take from us all that we have. Such an attitude of our people is illustrated by the remark of one traveler to another while traveling through a violent blizzard, "This certainly is a bad wind that is blowing today," said the first; answered the other, "It's not so bad if you're going in that direction."

The direction in which we are going is evident through the expansion of the Social Security Act since its beginning in 1935. At that time, this Act called only for five income-replacement programs: namely, Old Age Insurance, Old Age Assistance, Aid to the Blind, Aid to Dependent Children, and Unemployment Insurance. Political self-preservation and bureaucratic self-perpetuation have defeated the initial intent of the Social Security Act. It had been anticipated that the old age assistance program would become less and less important as insurance parts of the program grew; but, instead, assistance costs and payments have doubled, and redoubled, during these past thirty years. Costs to the individual have also more than quadrupled since the initial tax of 1935, that called for a 1 per cent tax to the employee and employer on the first \$3,000.00 of earnings. This has now increased to 4.2 per cent, applicable to the first \$6,600.00 of earnings. In addition to this, social security taxation will be increased to cover both Group A and Group B in Title 18 of our new social security law. This law states these taxes will further be increased at two-year intervals, dependent upon the cost necessary to support this new program. As others have said, "The present government in Washington is like the alimentary canal of a baby, an insatiable appetite at one end, and an absolute disregard for all responsibilities at the other."

Those who are paying higher social security taxes this year must be moved by a feeling of compassion when an elderly former President of the United States and his aging spouse apply for social security cash benefits, free hospitalization insurance, and federally subsidized medical insurance.

During our thirty-five years of social revolution, we have experienced its progression through

such titles as the New Deal, Fair Deal, New Frontier, and now the Great Society. Many people a generation ago lived a lifetime without ever coming into contact with any federal employee except the postmaster. Now the country is overrun with federal employees, tax collectors, inspectors, enforcers, checkers, smelters, and so on. You can scarcely draw a dollar in wages, spend a dollar, plant a seed, drive a car, or turn a corner without coming under a law or a regulation of the federal government, or under the watchful eye of one or more federal agents.

Now the Medicare program of the Social Security Administration, as promoted by President Johnson and his rubber stamp congress, is trying to be sold to the masses, by every conceivable means. They are trying to push the program by mail, by outdoor billboards and posters, by newspaper and magazine publicity, and by spot announcements on the TV and radio. As the New York Times states, "So far the Social Security people have not hired any belly dancers to get their message across."

My one most important message to you at this time is to remind you that, as yet, the Social Security Administration is not fully informing the public regarding public responsibilities to the Medicare program; nor, up to the present time, has the Social Security Administration informed the public regarding the limitations of benefits as incorporated into this law. They have not informed the people of the responsibilities that the individual, himself, must bear.

We are all acquainted with Parts A and B of Title 18 in Public Law 89-97. Any of you who are not so informed have already blundered beyond the point of no return.

We, as physicians, definitely need to give even greater consideration and concern to Title 19 of this law, as well as Public Law 89-239, the Administration's program dealing with heart disease, cancer and stroke; and Public Law 89-290, providing for special improvement grants to medical schools, grants sponsored primarily by the Department of Health, Education and Welfare.

I must specifically call your attention to Title 19 of Public Law 89-97, because, as this law is presently written, it will, by 1975, lead us into a state of total socialization of medicine far beyond presently conceivable concepts. This law will totally abolish all of our present individual state medical aid programs, such as medical aid to the

aged, old age assistance, aid to the blind, aid to crippled children, and every existing form of medical aid on the state level. No federal aid medical assistance will be given through any state levels unless each state provides institutional and non-institutional care, consisting of inpatient hospital services, outpatient hospital services, physician's services, skilled nursing home services, and laboratory and x-ray services, to every medically indigent person, whether receiving public assistance or not. All states must have such a medical assistance program, or otherwise forego federal matching funds for payments made for any medical care on behalf of assistance recipients. By July 1, 1975, the law expects that comprehensive care and services will be available to substantially all medically needy individuals throughout the nation.

If these are good laws, everyone will benefit; if these are bad laws, they will fail and must be changed.

After reading this law and studying its implications, one might be reminded of the story regarding Cussing Jones, a man known locally for his violent profane vocabulary. Cussing Jones and his son were driving a wagon loaded with apples up a hill when the tail gate fell out. As the son watched the apples roll out of the wagon and down the hill, he turned to his father and said, "Pa, what are you going to say now?" Pa's answer was, "Son, I am just not up to such an occasion."

Or, we might be reminded of what one of our grandfathers said when he stated, "The Volstead Act was not so bad, in fact, it was better than no liquor at all."

As stated earlier, the Social Security Department is not informing the public regarding all of the major factors of these laws. The public assumes "the government will pay everything, it will cost us nothing."

Last week our local county medical society published in our local newspapers a statement reminding the public that there were two parts to Medicare, Parts A and B, and telling the public what Medicare would pay and what Medicare would not pay. I am passing to you copies of this statement. Also, all doctors are providing their patients with this accompanying folder, clearly stating the doctor's responsibilities and the patient's responsibilities.

Many parts of present-day medical legislation are very specific, but other parts are so general

that one might suspect that they were intentionally made vague to mask the real intentions and avoid effective criticism. This legislation is not designed to relieve physicians of their responsibilities or to develop their freedom. It purports to protect their freedom to practice on one page, and then on the next page develops techniques whereby such freedoms can be curtailed by administrative control. The law designates the physician as the policeman to safeguard the program from abuse by over-utilization; yet, it also provides, perhaps as a threat, as to how such a committee shall be established if the hospital staff fails to provide one.

We must, however, fulfill these obligations, for to abdicate this function would invite regulation of admissions, discharges, and methods of treatment by lay or governmental groups entirely ignorant of the medical needs of the patient.

It is a certainty that through over-utilization, the costs of this new medicare program will far exceed the anticipated insurance revenues of the program; and, if we do not advise the public beforehand, the blame will be placed upon the physician, rather than upon government intentional underestimation of the costs of these benefits.

As the costs of these services are more and more assumed by a third party, through insurance, health and welfare plans, or government directed payments, the greater are the pressures exerted for the unnecessary services and a "hang the expense" attitude.

The more financial responsibility rests upon the individual, the more discriminating he becomes concerning over-utilization, and the less pressure he exerts for unnecessary or prolonged hospitalization and other abuses of medical service.

In the inaugural address of Dr. J. Z. Appel, the incoming President of the American Medical Association, last May, he brought out five points that must be followed: (1) the medical profession must continue to provide the highest quality of medical care for all people; (2) the medical profession must actively participate in the development of rules and regulations to implement this new legislation; (3) the medical profession must participate in the actual implementation of these new laws; (4) the medical profession must develop a strong, vigorous and convincing program to contain the law, so that harmful effects, as they

become evident, will not continue to be extended more and more and repeatedly broadened; (5) the medical profession must develop a strong, vigorous and convincing program that will enlist support from other groups and from all people toward amending the law as obvious necessary changes become evident.

On our return home, we must promptly show, through our respective local medical societies, through advertisements in our local newspapers, and through other forms of news media, that we, as doctors, are working to see that the Medicare program does materialize successfully. We must specifically advise our patients as to what coverage the program offers, and advise them, as well, of their own individual responsibilities. Otherwise, if this program, to the uninformed patient, seems unsatisfactory, there will be bitterness, and the bitterness will be directed toward his own physician, rather than toward his own representatives in Washington, who passed this law.

If we turn to the Scriptures, in the 16th chapter of Proverbs, the 20th verse, we will find this quotation, "He that handleth the matter wisely shall find good."

Some time back, a father received a congratulatory note regarding the birth of a new son. His answer to this note of congratulations read, in part, "I do not know whether to be happy or sorry over the birth of a son, to which I have contributed only a modest share. The poor infant enters the world in very troubled times. Only a few years have passed since peace was restored, and we still suffer cruelly from the effects of the war. Who knows under what form of government my son may be forced to live. It is enough to make one shudder. The conditions in life are daily becoming more difficult. Prices for food are absurd and exorbitant.

"I would like to see my son embrace the noble career of medicine, but I see quite well that he cannot. One of the faculty has confided to me that this profession is quite literally invaded. Then this madness of speed is wearing men out. It makes one giddy.

"The streets of the city are so congested that you must wait a long time if you wish to cross them. The madness of this century, my dear friend, will cause men to pay in the brevity of their days. My son, like his contemporaries, will not live to be old. He is now 48 hours old, but we know not what the future has in store for him."

This letter was written November 9, 1832. The son referred to was Alexander Guenoit. Though the medical profession was, at that time, "literally invaded," this man's son was able to enter medicine, and became, in time, one of the great physicians of France. On November 8, 1932, the French Academy of Medicine celebrated the 100th anniversary of Dr. Guenoit's birth. Though the father had written that due to the stress of those times, the son likely would not live to be old, Dr. Guenoit was present in the flesh, smiling and alert in accepting this honor.

The future should hold no fears for a well trained, capable and conscientious doctor, who is a prudent steward of his resources. Whether times are good, or whether times are bad, we continue to live at about the same level. Though times may be good, we continue to live at the same level, for, after all, good times are "all on paper." In bad times, life carries on at the same level, for again, bad times are "all on paper."

We are now entering the first step of Medicare this year. Further steps in future years are a certainty to broaden the benefits and expand the coverage of this program. Ultimate costs will represent billions of dollars, and this, among other factors, could swamp our economy; but likewise, this is money that will be put to new uses, and soon new values will be created, in terms of money, better health for the individual, more new jobs, and a better standard of living for all.

Many in the medical profession may look forward to Friday, July 1, 1966, when Medicare goes into effect, as Black Friday, the day of doom. But if we doctors will just continue to serve humanity in the same sincere, conscientious and unselfish fashion as before, we will, even a hundred years from now, still be a noble profession.



Sponsored by Arkansas Tuberculosis Association

ETIOLOGY OF UPPER RESPIRATORY ILLNESS AMONG CIVILIAN ADULTS

Of viruses isolated in 221 upper-respiratory-tract illnesses, rhinoviruses were the most frequently implicated, but fever was most common with infection due to influenza A virus.

In recent years many newly recognized viruses have been implicated as etiologic agents of acute undifferentiated upper-respiratory-tract illnesses in adults. Of these viruses, the rhinoviruses are apparently the ones most commonly isolated in adults ill with the "common cold."

Approximately 60 antigenically distinct serotypes have been recognized. The agents are associated with between 10 and 30 per cent of these mild illnesses in adults. Parainfluenza viruses and respiratory syncytial virus are associated with a smaller proportion, although they are important causes of bronchiolitis, croup, and pneumonia in children. Adenoviruses and coxsackievirus A-21 account for a minor amount of civilian adult respiratory-tract diseases.

Since there is limited information on the prevalence and relationship to disease of individual rhinovirus serotypes, an investigation was made of the relative frequency of rhinovirus infection and the pattern of occurrence of individual rhinovirus serotypes among civilian adults with minor respiratory-tract illness.

A total of 193 persons, who had 221 illnesses, constituted the study population. All were employees of the National Institutes of Health. Specimens were obtained within six days of onset of illness. Virus isolation was attempted from the nasopharyngeal or throat-swab specimens of all patients. Sera, obtained during acute and convalescent phases of illness, were tested by complement fixation.

MAURICE A. MUFSON, M.D.; PATRICIA A. WEBB, M.D.; HILDA KENNEDY; VIRGINIA GILL; and ROBERT M. CHANOCK, M.D. *The Journal of the American Medical Association*, January 3, 1966.

RHINOVIRUSES COMMON

Evidence of virus infection was detected either by virus isolation or serologic response or both in 74 (34 per cent) of the 221 illnesses. Rhinoviruses were recovered more commonly than any other group of viruses and were isolated during most months of the study. Seventeen distinct serotypes were identified from among the 40 rhinoviruses recovered. No one serotype predominated. Nine strains could not be identified. All patients from whom an identified rhinovirus was recovered were tested for homologous neutralizing antibody with the prototype strain of that serotype. In these tests, 22 (55 per cent) of 40 patients from whom a rhinovirus was recovered had a four-fold or greater rise in homologous neutralizing antibody.

The rate of recovery of other viruses varied from 2 per cent to 5 per cent. A single sharp outbreak of influenza A virus infection occurred in January and February 1963. With one exception, influenza A virus was not detected again.

Parainfluenza virus types 1 and 3 infections were detected in 4 per cent and 2 per cent of illnesses, respectively. The majority of parainfluenza 1 infections were detected from November 1962 to January 1963; one additional patient had parainfluenza infection in June 1964. Parainfluenza 3 infections occurred during three different periods of the study.

Herpesvirus was recovered from 3 per cent of the patients tested, a sporadic pattern of occurrence being evident. Infections due to respiratory syncytial virus, parainfluenza virus type 2, adenovirus or coxsackievirus A-21 were uncommon.

Only three patients had evidence of infection with two or more agents. Infection with influenza type B or *Mycoplasma pneumoniae* was not detected.

FEVER RARE

Temperature elevation above 99 F occurred in

only 15 (7 per cent) of the patients during the course of illness. Except for influenza A virus, the rate of virus recovery from patients with or without fever was similar. Influenza A virus was recovered significantly more often from persons with febrile illness. Recovery rates for a number of viruses did not vary significantly during the first three to five days of illness.

Influenza A2 virus was epidemic in the United States during the winter of 1963, and, except for one case, all infections with this agent in the study population were detected during January and February 1963. The overall rate of infection with influenza A2 virus was only 5 per cent; however, during January and February 1963, 11 (44 per cent) of 25 patients tested had evidence of infection with this virus. Influenza A infection occurred in all age groups.

Primary infection with the parainfluenza viruses occurs in early childhood and is associated with moderate to severe respiratory-tract illness, usually accompanied by fever. Almost all adults possess neutralizing antibody for parainfluenza virus type 3, and most adults have parainfluenza virus type 1 neutralizing antibody.

Parainfluenza viruses have been recovered from adults with naturally occurring upper-respiratory-tract illness. The significance of naturally occurring reinfection is not clear since comparative data are not available from controlled epidemiologic studies which would substantiate an etiologic role of these viruses in adult illness. However, the development of disease in experimentally

infected volunteers who possess neutralizing antibody suggests that these agents are capable of producing illness during reinfection. In the present study, parainfluenza virus types 1 and 3 were recovered from 6 per cent of adults with the upper-respiratory-tract illness. It is probable that we have underestimated the potential role of the parainfluenza viruses in adult upper-respiratory-tract disease.

Respiratory syncytial virus resembles the parainfluenza viruses in that primary infection occurs in early childhood and is associated with moderate to severe respiratory-tract illness, often with fever. All or almost all adults possess neutralizing antibody for respiratory syncytial virus. In the present study, evidence of infection with respiratory syncytial virus was found in only two of 221 illnesses.

The relation of herpesvirus infection to naturally occurring upper-respiratory-tract illness in adults is not clearly defined. It has been suggested that herpesvirus is an important etiologic agent of acute pharyngitis in adults.

In the present study, one patient from whom herpesvirus was recovered during two illnesses, one month apart, had an antibody rise following the second illness. This patient lacked complement fixation antibody at the onset of the second illness. These findings suggest that serologic response may not be an adequate measure of primary infection and indicate the difficulty of assessing the role of herpesvirus in naturally occurring upper-respiratory-tract illness in adults.



Fluorescent Antibody Technique as a Routine Procedure in the Diagnosis of Lupus Erythematosus Using Stored Tissue Culture

N. M. Muna, J. L. Verner, and D. F. Hammond
(Thomas D. Dee Memorial Hosp, Ogden,
Utah) *Amer J. Clin Path* 45:117 (Feb) 1966

The lupus erythematosus (LE) test is a DNA-antiDNA reaction. This paper describes a convenient model for detecting antibodies for DNA in LE patients by an immuno-fluorescent technic. The source of DNA was the nuclei of tissue culture cells that have been grown on glass cover-slips, fixed in ether-alcohol and stored in 50%

buffer-glycerol. The patient's serum was diluted (to avoid false positives due to other collagen diseases), allowed to react with the nuclei, washed, and finally antihuman-fluorescent-in-tagged goat globulin was overlaid on the cells. Positive and negative controls were always run and a slight amount of complement was present in all diluents; this appeared to have a stabilizing, highly reproducible effect on the reaction. The slides were read under fluorescent microscope. This method shows several advantages over the conventional LE preparation from blood. Preparation time and time involved in interpretation are considerably shortened. Few equivocal preparations are encountered.

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 (BR) Book Reviews: (E) Editorial: (OB) Obituary:
 (R) Resolution:

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 Drennen, S. A.110 West 3rd, Stuttgart, WA 2-3531
 Henderson, Francis M.425 So. Main, Stuttgart, WA 2-7484
 Hestir, John M.220 W. Gibson, DeWitt, WH 6-6255
 Holton, Jerry C.509 South Main, Stuttgart, WA 2-1372
 John, Milton C., Jr.Route 1, Box 21D, Stuttgart, WA 2-1492
 Lanier, Paul R.No. 4 Northbrook Circle, Little Rock, CA 5-2325
 McCracken, E. A.509 South Main, Stuttgart, WA 2-1372
 Mathews, TravisBox 398, Hazen, 2681
 Millar, Paul H., Jr.Route 1, Box 21D, Stuttgart, WA 2-1492
 Northcutt, Carl E.Route 1, Box 21D, Stuttgart, WA 2-1492
 Pritchard, Jack L.1022 So. Main, Stuttgart, WA 2-1641
 Rasco, Charles W., Jr.523 West Cross, DeWitt, WH 6-2800
 Riley, H. C.Stuttgart, NF
 Stone, Fred B.Route 1, Box 21D, Stuttgart, WA 2-1492
 Van Duyn, T. S.1204 So. Buurke, Stuttgart, WA 2-5112
 Whitehead, R. H., Sr.121 North Adams, DeWitt, WH 6-4181

ASHLEY COUNTY

Cothern, W. R.Crossett Health Center, Crossett, FO 4-4111
 Crandall, M. C.Wilmot, 473-2616
 Edwards, L. E.Crossett Health Center, Crossett, FO 4-4114
 Gresham, E. C.P. O. Box 827, Crossett, FO 4-2137
 Hicks, Charles E.Hamburg Clinic, Hamburg, ID 3-5250
 Jordan, Billy J.113 Pine, Crossett, FO 4-2115
 Mask, D. L.606 West Parker, Hamburg, ID 3-5593
 McCormack, Harold A.Box 67, Wilmot, 473-5504
 Rankin, James D., Jr.Hamburg Clinic, Hamburg, ID 3-5250
 Regnier, W. A.115 Pine, Crossett, FO 4-2115
 Ripley, C. E.Crossett Health Center, Crossett, FO 4-4111
 Salb, R. L.113 Pine, Crossett, FO 4-2138
 Wood, J. T.General Delivery, Fountain Hill, ID 3-5348

BAXTER COUNTY

Arnold, Carl B.Salem Clinic, Salem, 895-3281
 Beard, Arthur L.P. O. Box 278, Gainesville, Missouri, OS 9-4421
 Chambers, Seldon W.512 S. Baker, Mountain Home, 425-3613
 Cheney, Maxwell G.353 E. 8th, Mountain Home, 425-3125
 Davis, James H.Salem Clinic, Salem, 895-3281
 Ducker, David E.Salem Clinic, Salem, 895-3281
 Dunbar, James C.617 South Baker, Mountain Home, 425-2020
 Gray, Elisha M.212 West 6th, Mountain Home, 425-3261
 Guenther, John F.126 West 6th, Mountain Home, 425-3131
 Hargrove, Fred T.719 Langston, Mountain Home, 425-4313
 Hildebrand, EugeneRoute 3, Mountain Home, 425-4799
 Saltzman, Ben N.126 West 6th, Mountain Home, 425-3131
 Shafavsky, MelvinLos Angeles, California, NF
 Shonyo, Elwyn S.126 West 6th, Mountain Home, 425-3131
 Snow, William R.8th and Shiras, Mountain Home, 425-3125

BENTON COUNTY

Clower, John D.1149 West Walnut, Rogers, ME 6-2921
 Cohagen, D. L.216 North Main, Bentonville, CR 3-5543
 Compton, Neil E.Box 209, Bentonville, CR 3-5413
 Dean, Lee A.VA Hospital, North Little Rock, FR 2-8361
 Duckworth, F. M.110 South College, Siloam Springs, 524-3692
 Gunter, Cal D.304 South Maxwell, Siloam Springs, 524-3141
 Hall, Billy V.South First Street, Gravette, ST 7-2691
 Huskins, J. D.304 South Maxwell, Siloam Springs, 524-3141
 Jackson, J. L.205 North Main, Bentonville, CR 3-2621
 Jennings, W. E.208 South 2nd, Rogers, ME 6-2711
 McCollum, E. N.Box 96, Decatur, 752-3233
 Gravette Medical Center, Gravette, ST 7-2691
 McCollum, Robert H.Center, Gravette, ST 7-2691
 Martin, John R.304 South Maxwell, Siloam Springs, 524-3141
 Pickens, J. L.105 South 12th, Rogers, ME 6-3220
 Pillsstrom, Lawrence G.103 South 12th, Rogers, ME 6-2833
 Puckett, Billy J.304 South Maxwell, Siloam Springs, 524-3141
 Rollow, John A.211 Northeast A, Bentonville, CR 3-2244
 Stinnett, Charles H.304 South Maxwell, Siloam Springs, 524-3141
 Warren, Grier D.212 North 2nd, Rogers, ME 6-2214
 Weaver, Donald D.Main Street, Gentry, 736-3911
 White, Harry M.208 South 2nd, Rogers, ME 6-2711
 Williams, James R. (Rex)P. O. Box 8, Siloam Springs, 524-5951
 Wilson, Charles S.Box 365, Nashville, NF
 Wilson, Stewart M.208 South 2nd, Rogers, ME 6-2711

BOONE COUNTY

Barron, William P.707 North Vine, Harrison, EM 5-8686
 Bennett, Joe D.Boone County Hospital, Harrison, EM 5-5461
 Breit, William H.707 North Vine, Harrison, EM 5-8147
 Fowler, Ross213 West Stephenson, Harrison, EM 5-8651
 Gladden, Jean707 North Vine, Harrison, EM 5-8275
 *Gladden, J. G.Harrison
 Hammon, Albert R.520 North Spring, Harrison, EM 5-8286
 Hudson, William A.502 South Pine, Harrison, EM 5-3804
 Jackson, Ulys118 So. Pine, Harrison, EM 5-5333
 Kelley, Lawrence A.Gaines Building, Yellville, HI 9-6414
 Kirby, Henry V.216 North Walnut, Harrison, EM 5-5022
 Langston, Robert H.520 North Spring, Harrison, EM 5-8286
 McCoy, Orville B.220 North Walnut, Harrison, EM 5-3592
 Owens, D. L.Harrison Clinic, Harrison, EM 5-3232
 Robinson, G. Allen707 North Vine, Harrison, EM 5-2763
 Russell, David M.707 North Willow, Harrison, EM 5-8155
 Siler, Kenneth A.707 North Vine, Harrison, EM 5-5570

Smith, Van707 North Vine, Harrison, EM 5-3459
 Svendsen, Fred J.Gaines Building, Yellville, HI 9-6311
 Wallace, OliverGreen Forest, 438-5219
 Williams, Rhys A.707 North Vine, Harrison, EM 5-8275
 Wilson, Joe B.520 North Spring, Harrison, EM 5-8286

BRADLEY COUNTY

Crow, Merl T.203 East Church, Warren, CA 6-4811
 Marsh, J. W.302 North Main, Warren, CA 6-2112
 Miles, Dallas D.409 East Central, Warren, CA 6-4237
 Whaley, William C.203 East Church, Warren, CA 6-4811
 Wynne, George F.202 West Cypress, Warren, CA 6-2844

CHICOT COUNTY

*Binns, Byron Z.Eudora
 Burge, J. H.Lake Village Infirmary, Lake Village, AN 5-2255
 Harbison, James D.Lake Village
 Infirmary, Lake Village, AN 5-2255
 Johnston, Gaither C.Lake Village
 Infirmary, Lake Village, AN 5-2255
 Smith, Major E.124 E. Peddicord, Dermott, FA 4-4717
 Talbot, Allen G.Lake Village Infirmary, Lake Village, AN 5-2255
 Thomas, H. W.105 No. Freeman, Dermott, FA 4-4255
 Thompson, John A.Dermott, NF
 Weaver, W. J.P. O. Box Q, Eudora, EL 5-4376
 Wilson, Thomas C.117 E. Peddicord, Dermott, FA 4-4253

CLARK COUNTY

Anderson, P. R.416 Main, Arkadelphia, CH 6-2431
 Balay, John W.1008 Pine, Arkadelphia, CH 6-4571
 Clark, Charles G.130 North 7th, Arkadelphia, CH 6-4051
 Gary, Eli137 North 6th, Arkadelphia, CH 6-2491
 Kennedy, Jack W.1008 Pine, Arkadelphia, CH 6-4571
 Luck, H. D.908 Main, Arkadelphia, CH 6-2471
 Nunnally, R. H.107 North 3rd, Gurdon, FL 3-2501
 Peeples, George R.305 East Main, Gurdon, FL 3-4422
 Reid, Joe W.618 Caddo, Arkadelphia, CH 6-2861
 Ross, W. A.408 Clay, Arkadelphia, CH 6-2201
 Thompson, A. W.Shreveport, Louisiana
 Tilley, L. B.416 Main, Arkadelphia, CH 6-2431
 Walker, Lawrence G.416 Main, Arkadelphia, CH 6-2431

CLEBURNE COUNTY

Baldrige, Doris A.103 North 6th, Heber Springs, FO 2-3479
 Baldrige, H. K.V. A. Hospital, North Little Rock, FR 2-8361
 Baldrige, Max824 Pine, Texarkana, NF
 Barnett, James C.4th and Spring, Heber Springs, FO 2-2744
 Barnett, Michael E.4th and Spring, Heber Springs, FO 2-2744
 McClanahan, Donald H.600 West Main, Heber Springs, FO 2-2414
 Poff, Nathan L.600 West Main, Heber Springs, FO 2-2414
 Sharp, Jack V.301 West Searcy, Heber Springs, FO 2-3316
 Wells, W. M.600 West Main, Heber Springs, FO 2-2414

COLUMBIA COUNTY

Alexander, John E.707 North Washington, Magnolia, CE 4-2288
 Carrington, H. K.720 N. Washington, Magnolia, CE 4-1372
 Grimmett, ByronHighway 19 North, Waldo, 693-5837
 Houston, Evan G.104 East Columbia, Magnolia, CE 4-2230
 Jones, Thomas H.Waldo, 693-5634
 Kelley, Charles W.105 West North, Magnolia, CE 4-5544
 Ruff, Horace E.200 King, Magnolia, CE 4-2070
 Ruff, John L.104 Hospital Road, Magnolia, CE 4-2144
 Rushton, Joe F.219 North Washington, Magnolia, CE 4-1168
 Sizemore, Paul123 North Jackson, Magnolia, CE 4-3040
 Souter, A. J.Waldo, 693-5834
 Walker, Jack T.123 North Jackson, Magnolia, CE 4-3040
 Webb, Kathleen EgnerCity Hospital, Magnolia, CE 4-4100
 Weber, Charles L.110 West North, Magnolia, CE 4-4111
 Wilson, John H.123 North Jackson, Magnolia, CE 4-3040

CONWAY COUNTY

Darwin, William G.Ann Arbor, Michigan
 Hickey, Thomas H.1109 East Broadway, Morrilton, FL 4-4428
 Holloway, O. R.1001 Harvey, Jacksonville, NF
 Hyatt, Benjamin C.Community Health Center, Perryville, TU 9-2777
 Hyder, Harold E.Saudi, Arabia
 Magie, Jimmie J.200 South Moose, Morrilton, FL 4-2456
 Mobley, Jack E.New Orleans, Louisiana
 Owens, Gastor B.601 South Moose, Morrilton, FL 4-4505
 Scroggin, James H.P. O. Box 361, Jacksonville, NF
 Wells, Charles F.601 South Moose, Morrilton, FL 4-2123
 White, Henry B.1109 East Broadway, Morrilton, FL 4-4428
 Williams, C. Ray6 Riveria Circle, Little Rock, MO 3-3621

CRAIGHEAD-POINSETT COUNTY

Alcott, George B.Bald Knob, PA 4-3942
 Alston, Herman D.802 Jeter Drive, Jonesboro, WE 2-4570
 Baker, Glen F.814 Cobb, Jonesboro, WE 2-7430
 Barnett, Horace C.114 East Oak, Jonesboro, WE 5-5513
 Bell, William K.814 Cobb, Jonesboro, WE 2-7430
 Blanton, M. E.808 South Church, Jonesboro, WE 2-8433
 Bogaev, Leonard R.812 Cobb, Jonesboro, WE 2-2926
 Caffery, Eldon L.812 Cobb, Jonesboro, WE 2-2926
 Clopton, Owen H., Jr.826 Cobb, Jonesboro, WE 2-1198
 Coker, S. D.806 Jeter Drive, Jonesboro, WE 2-6609
 Cole, C. R.519 North 6th, Blytheville, PO 3-1554
 Cooper, Edward M.224 East Matthews, Jonesboro, WE 2-7458

Craig, Gus A. 816 Cobb, Jonesboro, WE 2-3022
 Douglas, W. M. 4301 West Markham, Little Rock, MO 6-9461
 Faris, John C. 907 Union, Jonesboro, WE 2-2423
 Forestiere, A. J. Box 106, Harrisburg, PL 7-5443
 Garner, William L. 411 East Matthews, Jonesboro, WE 2-8121
 Gray, John T. 905 Union, Jonesboro, WE 2-6246
 Hogue, Ernest L. 311 East Matthews, Jonesboro, WE 2-8323
 Jones, J. K. Lepanto, 475-2561
 Keisker, Henry W., Jr. 804 Jeter Drive, Jonesboro, WE 2-4581
 Keller, Glen E. University Center, Jonesboro, WE 2-4584
 Kemp, Charles E. 809 Cobb, Jonesboro, WE 5-6012
 Kirkley, John B. 806 Jeter Drive, Jonesboro, WE 2-6609
 Ledbetter, Joseph W. 804 South Church, Jonesboro, WE 5-5454
 Ledbetter, Paul 826 South Main, Jonesboro, WE 2-8392
 McCurry, J. H. Cash, NF
 *McDaniel, L. H. Tyrnza
 Mayfield, J. R. 832 Cobb Street, Jonesboro, WE 2-4211
 Mitchell, George E. 832 Cobb Street, Jonesboro, WE 2-7451
 Modelevsky, A. C. 1004 Wall, Jonesboro, WE 2-3681
 Moreland, W. H. Tyrnza, NF
 Neblett, Donald 826 Cobb, Jonesboro, WE 5-6012
 Peeler, Malcolm O. 211 East Matthews, Jonesboro, WE 2-7496
 Poff, Joseph H. Trumann, 483-6358
 Poole, Grover D. 605 Southwest Drive, Jonesboro, WE 2-2634
 Raney, Bascom P. 403 E. Matthews, Jonesboro, WE 5-5529
 Riggs, Orval E. 1016 Rosmond, Jonesboro, WE 5-4914
 Robinette, James M. 135 West Main, Jonesboro, WE 2-1181
 Shanlever, R. C. 624 South Main, Jonesboro, WE 2-7428
 Shepherd, W. F. 211 East Matthews, Jonesboro, WE 2-7496
 Smith, Floyd A., Jr. 415 West Main, Trumann, 483-6411
 Smith, Vestal B. 21 Elm Street, Marked Tree, 358-2811
 Smith, William H. Bono, NF
 Smoot, John D. 224 East Matthews, Jonesboro, WE 2-7458
 Sparks, E. Barrett 1400 Judy, Jonesboro, WE 2-4211
 Stroud, Paul T. 311 East Matthews, Jonesboro, WE 2-8323
 Swingle, Charles G. 105 Nathan, Marked Tree, 358-2036
 Verser, Joe Box 106, Harrisburg, PL 7-5443
 Webb, James W. 806 South Church, Jonesboro, WE 2-8221
 Wisdom, Durwood 411 East Matthews, Jonesboro, WE 2-8121

CRAWFORD COUNTY

Calaway, Robert L. Drawer C, Mulberry, 997-3941
 Edds, M. C. 11th & Chestnut, Van Buren, GR 4-2361
 Hopkins, Ed G. 11th & Chestnut, Van Buren, GR 4-2361
 Kirksey, O. J. 714 No. Main, Mulberry, 997-2081
 Savery, H. W. 618 1/2 Main, Van Buren, GR 4-2131
 Thicksten, Jack N. 164 Fayetteville, Alma, 4881

CRITTENDEN COUNTY

Deneke, Milton D. 300 South Rhodes, West Memphis, RE 5-1170
 *Fall, James R. West Memphis
 Ferguson, T. Murray 200 South Rhodes, West Memphis, RE 5-4610
 Ford, Robert C., Jr. 300 South Rhodes, West Memphis, RE 5-1170
 Hamilton, Ralph B. 300 South Rhodes, West Memphis, RE 5-1170
 Hare, T. S. Crawfordville, TA 3-5374
 Jay, Gilbert D., III 200 South Rhodes, West Memphis, RE 5-4610
 Kennedy, Keith B. 200 Tyler, West Memphis, RE 5-7680
 Lanford, H. G. 308 South Rhodes, West Memphis, RE 5-3664
 Little, C. J. 200 South Rhodes, West Memphis, RE 5-4610
 Lubin, Milton Box 136, Turrell, DI 3-2501
 McVay, L. C. Marion, PE 9-3525
 Peeples, Chester W., Jr. 300 South Rhodes, W. Memphis, RE 5-1170
 Pontius, David H., Jr. 300 South Rhodes, W. Memphis, RE 5-1170
 Randolph, Jerry F. Turrell Clinic, Turrell, RE 5-3919
 Schoettle, Glenn P. 308 South Rhodes, West Memphis, RE 5-3664
 Smith, Bedford W. 300 South Rhodes, West Memphis, RE 5-1170
 Taylor, C. Herbert 200 South Rhodes, West Memphis, RE 5-4610
 Winters, W. Lee Box 608, Earle, GL 6-5561
 Wright, William J. Box 608, Earle, GL 6-5561

CROSS COUNTY

Beaton, K. E. 303 East Union, Wynne, BE 8-2321
 Crain, Vance J. 303 East Union, Wynne, BE 8-2321
 Hayes, Robert A. 411 South State, Wynne, BE 8-3261
 Hickman, R. L. Selmer, Tennessee, NF
 Price, Thomas G. 411 South State, Wynne, BE 8-3261

DALLAS COUNTY

Adams, Carl H. Carthage Clinic, Carthage, 254-2211
 Atkinson, H. H. 300 Cadiz, Fordyce, 352-2537
 Delamore, John H. 1100 West 3rd, Fordyce, 352-2771
 Estes, E. E. 205 East 3rd, Fordyce, 352-2626
 Howard, Don G. 110 N. Clifton, Fordyce, 352-3151
 *McMahan, H. S. V. A. Hospital, Little Rock, FR 4-3331
 Taylor, George D. Sparkman, 678-2406

DESHA COUNTY

Biscoe, Goree 129 West Waterman, Dumas, EV 2-4331
 Blackwell, O. G. 135 West Waterman, Dumas, EV 2-4878
 Harris, Howard R. 207 South Elm, Dumas, EV 2-4425
 Hellums, Julius H. 129 West Waterman, Dumas, EV 2-4331
 Lazenby, Albert W. 135 West Waterman, Dumas, EV 2-4878
 Moss, Swan B. 202 North 4th, McGehee, CA 2-3141
 Parker, Lee B. 101 N. 2nd, McGehee, CA 2-3015
 Rands, Howard A. 415 East Farmer, Dumas, EV 2-4313
 Robinson, Guy U. 207 South Elm, Dumas, EV 2-4425
 *Smith, H. T. McGehee
 Turney, Lonnie R. 101 South Third St., McGehee, CA 2-4044

DREW COUNTY

Binns, Van C. 201 East Trotter, Monticello, EM 7-3531
 Busby, A. K. 816 North Hyatt, Monticello, EM 7-3246
 Holder, J. B., Jr. 814 North Main, Monticello, EM 7-3556
 Hyatt, C. Lewis (President) 515 North Main, Monticello, EM 7-5393

Price, J. P., Jr. 216 South Main, Monticello, EM 7-5251
 Wallick, Paul A. 216 South Main, Monticello, EM 7-5251

FAULKNER COUNTY

Archer, C. A., Jr. 919 Locust, Conway, FA 9-2946
 Banister, B. F., Jr. 1300 Parkway, Conway, FA 9-3824
 Banister, Bob G. 1300 Parkway, Conway, FA 9-3824
 Benafield, Robert B. 919 Locust, Conway, FA 9-2946
 Clark, Robert L. 810 Parkway, Conway, FA 9-8313
 Daniel, Sam V. 574 Locust, Conway, FA 9-6111
 Downs, J. H. Box 56, Vilonia, 796-2055
 Dunaway, Edwin L. 919 Locust, Conway, FA 9-2946
 Gordy, L. F., Jr. 552 Locust, Conway, FA 9-6881
 Lieblong, Keller 1300 Parkway, Conway, FA 9-3824
 Sneed, John W., Jr. 552 Locust, Conway, FA 9-6881
 Taylor, Robert L. 810 Parkway, Conway, FA 9-3815

FRANKLIN COUNTY

Bollinger, W. H. Box 6, Charleston, 965-2632
 Gibbons, David L. Gibbons Clinic, Ozark, MO 7-5241
 Gibbons, W. H. Gibbons Clinic, Ozark, MO 7-5241
 *Hensley, William C. Charleston
 Jones, Evelyn R. 1100 Bluff Drive, Ozark, NF
 Jones, James Laurence Second & Commercial, Ozark, MO 7-5121
 Long, C. C. Second & Commercial, Ozark, MO 7-5121
 Roberts, William J. Charleston, 965-2672

GARLAND COUNTY

Adams, Frank M. 236 Central, Hot Springs, NA 3-8751
 Atkinson, Robert H. 236 Central, Hot Springs, NA 3-6101
 Bennett, R. V. 236 Central, Hot Springs, NA 3-9762
 Black, T. N. 133 Oakwood, Hot Springs, NA 3-2156
 Bohnen, Loren O. 236 Central, Hot Springs, NA 3-6694
 Bracken, Ronald J. 236 Central, Hot Springs, NA 4-4478
 Brewer, Howell W. Memphis Tennessee
 Burrow, Thomas E. 236 Central, Hot Springs, NA 3-8110
 Burton, Frank M. 101 Whittington, Hot Springs, NA 3-6611
 Chamberlain, Warren W. 330 Sixth Street, Hot Springs, NA 3-4477
 Chenault, H. Clay 231 Central, Hot Springs, NA 3-1603
 Clardy, Edgar K. 300 Prospect, Hot Springs, NA 4-1281
 Coffey, George C. 236 Central, Hot Springs, NA 3-2731
 Collier, T. J., Sr. 501 Malvern, Hot Springs, NA 3-8864
 Daniel, R. L. State Hospital, Benton, SP 8-1111
 Dembinski, T. Henry 805 1/2 Central, Hot Springs, NA 3-9781
 Devine, J. C. 236 Woodbine, Hot Springs, NA 3-9216
 Dodson, John W., Jr. 236 Central, Hot Springs, NA 3-4541
 Durham, Thomas M., Jr. 236 Central, Hot Springs, NA 3-7717
 Eisele, William Martin 101 Whittington, Hot Springs, NA 3-6611
 Fotioo, George J. 236 Central, Hot Springs, NA 3-5121
 French, James H. 101 Whittington, Hot Springs, NA 3-6611
 Garner, O. P. 1705 Central, Hot Springs, NA 3-3521
 Garratt, Charles E. 236 Central, Hot Springs, NA 3-2691
 Goetze, Dorothy 104 Curve Street, Hot Springs, NA 3-4913
 Goodrum, William A. 236 Central, Hot Springs, NA 3-7031
 Graham, Richard F. 236 Central, Hot Springs, NA 3-4391
 Gray, W. E. 236 Central, Hot Springs, NA 3-6694
 Haggard, John L. 101 Whittington, Hot Springs, NA 3-6611
 Hebert, Gaston A. 802 Prospect Avenue, Hot Springs, NA 3-7216
 Hoyt, Jerry L. 211 Hobson, Hot Springs, NA 4-4581
 Jackson, Haynes G. 238 Woodbine, Hot Springs, NA 3-6628
 Jackson, W. W. 328 Thompson Building, Hot Springs, NA 3-4931
 King, Leeman H. 236 Central, Hot Springs, NA 3-1545
 Klugh, Walter G., Jr. 236 Woodbine, Hot Springs, NA 3-9216
 Klugh, Walter G., Sr. 238 Woodbine, Hot Springs, NA 3-4511
 Lee, D. C. 236 Central, Hot Springs, NA 3-2518
 Lee, W. R. St. Josephs Hospital, Hot Springs, NA 3-5501
 Lovell, Claurence R. 414 Albert Pike, Hot Springs, NA 4-3606
 Hot Springs Rehabilitation Center, Hot Springs, NA 4-4411

McCluer, Shirley M. Center, Hot Springs, NA 4-4411
 McConkie, Stuart B. 236 Central, Hot Springs, NA 3-7717
 McCrary, Robert F. 238 Woodbine, Hot Springs, NA 3-6628
 McFarland, Louis R. 211 Hobson, Hot Springs, NA 3-5752
 McMahan, J. C. 306 Albert Pike, Hot Springs, NA 4-2111
 Martin, L. G. 236 Central, Hot Springs, NA 3-6491
 Mashburn, William R. 236 Central, Hot Springs, NA 3-4453
 Murray, DuBose 236 Central, Hot Springs, NA 3-7717
 Parkerson, Carl R. 1421 Central, Hot Springs, NA 4-3341
 Parkerson, C. W. 1421 Central, Hot Springs, NA 4-3341
 Patterson, Ralph M. 231 Central, Hot Springs, NA 3-1603
 Power, Allyn R. 236 Central, Hot Springs, NA 3-3102
 Purdum, E. A. 236 Central, Hot Springs, NA 3-6161
 Queen, George P. 236 Central, Hot Springs, NA 3-5221
 Reed, Lon E. 1315 Central, Hot Springs, NA 4-1207
 Rosenzweig, Joseph L. 236 Woodbine, Hot Springs, NA 3-6664
 Rowland, E. Driver 236 Central, Hot Springs, NA 3-2181
 Sammons, Vernon E. 236 Central, Hot Springs, NA 3-9581
 Scott, Jeff O. 1711 Central, Hot Springs, NA 3-1374
 Scully, Francis J. 236 Central, Hot Springs, NA 3-3157
 Sloan, Clay A. 2623 Malvern Road, Hot Springs, NA 3-5802
 Smith, Euclid M. 4712 Gaston, Dallas, Texas, TA 6-7965
 Smith, Oliver A. Ark. Natl. Bank Bldg., Hot Springs, NA 3-1121
 Smith, William K. 236 Central, Hot Springs, NA 3-2171
 Springer, M. R., Jr. 236 Central, Hot Springs, NA 3-6694
 Stough, D. B. 236 Central, Hot Springs, NA 3-6921
 Stough, D. B., III 236 Central, Hot Springs, NA 4-3201
 Strong, Leonell C. 217 Emory, Hot Springs, NA 4-4838
 Tribble, A. H. 208 Trivista Left, Hot Springs, NA 4-1355
 Trieschmann, John W. 236 Woodbine, Hot Springs, NA 3-6664
 Wade, H. King, Jr. 231 Central, Hot Springs, NA 3-1603
 Wade, H. King, Sr. 231 Central, Hot Springs, NA 3-1603
 Woodcock, William A. 236 Central, Hot Springs, NA 3-9581
 Wright, Jack 211 Hobson, Hot Springs, NA 3-6677
 Wright, Paul O. 612 Albert Pike, Hot Springs, NA 3-2255
 Yates, Andrew J. Memphis, Tennessee, NF
 Yohe, Charles D. 236 Central, Hot Springs, NA 3-2517

GRANT COUNTY

Clark, Curtis B. 200 South Rose, Sheridan, WH 2-0951
Irvin, Jack M. 205 High, Sheridan, WH 2-3171
Kelly, Miles F. Arkansas Slate Hospital, Benton, SP 8-1111

GREENE-CLAY COUNTY

Andrews, Allie E., Jr. 320 So. 10th, Paragould, CE 6-3508
Baker, Clark M. 115 West Court, Paragould, CE 6-6356
Bradsher, Omer E. 901 West Kingshighway, Paragould, CE 6-8765
Cash, Jack Q. 700 West 2nd, Corning, UL 7-4241
Clopton, O. H. 100 West 4th, Rector, 595-2671
Crow, Asa A. P. O. Box 46, Cardwell, Missouri, OL 4-7626
Duckworth, Hillard R. Piggott Clinic, Piggott, LY 8-2237
Futrell, J. Byron Rector, 595-2611
Harper, Bland R. P. O. Box C, Monette, 486-5719
Iselle, A. Frank Memphis, Tennessee, NF
Joffe, Irwin Methodist Hospital, Paragould, CE 6-7733
McGaughey, Solon 901 West Kingshighway, Paragould, CE 6-8765
*McGuire, J. E. Piggott
McKelvey, E. D. 112 West Court, Paragould, CE 6-8716
*Maddox, A. H. Paragould
Page, Bill C. 602 West Second, Corning, UL 7-5491
Purcell, Donald I. 1001 West Kingshighway, Paragould, CE 6-7623
Watson, Samuel D. 421 West Kingshighway, Paragould, CE 6-8591
Williams, Jacob M. 1001 W. Kingshighway, Paragould, CE 6-7623

HEMPSTEAD COUNTY

Branch, James W. 426 South Main, Hope, PR 7-3473
Harris, C. Lynn 205 South Elm, Hope, PR 7-2131
Harris, Lowell O. 205 South Elm, Hope, PR 7-2131
Holt, Forney G. 420 East 2nd, Hope, PR 7-6722
McKenzie, Jim 601 South Elm, Hope, PR 7-2321
Martindale, James G. 116 South Main, Hope, PR 7-3464
Martindale, Jud B. 116 South Main, Hope, PR 7-3464
Spring, James A. Plain Dealing, Louisiana
Wright, George H. 420 East 2nd, Hope, PR 7-6722

HOT SPRING COUNTY

Barrier, Wilbur F. 1618 Circle Drive, Malvern, ED 2-2613
Berry, Morgan C. 725 East Page, Malvern, ED 2-5131
Cobb, Russell W. 1420 Potts, Malvern, ED 2-3112
Cole, John W. 725 East Page, Malvern, ED 2-5641
Ellis, C. Randolph 1004 South Main, Malvern, ED 2-6941
Kersh, Noah B. 1415 Smith, Malvern, ED 7-7533
McCray, Raymond V. 214 East Highland, Malvern, ED 2-2704
Paul, Robert K. 1525 Reed, Malvern, ED 2-3705
Peters, Claude F. 1420 Potts, Malvern, ED 2-2521
Rosenthal, George, Jr. 1120 South Dyer, Malvern, ED 2-2571
White, Robert H. 1004 Dyer, Malvern, ED 2-3481
Wise, John D. 1219 South Main, Malvern, ED 2-6961

HOWARD-PIKE COUNTY

Djldy, Edwin V., Jr. 122 West Hempstead, Nashville, TI 5-1933
Floyd, G. J., Jr. Box 279, Murfreesboro, TI 5-3341
Holt, H. H. Mineral Springs Highway, Nashville, TI 5-2406
Jones, William J. Box 49, Glenwood, 35 6-3331
Smith, Uthel L. Mineral Springs Highway, Nashville, TI 5-3880
Ward, Hiram T. 510 N. Washington, Murfreesboro, TI 5-2491
Wesson, John H. 115 West Howard, Nashville, TI 5-4676
Wilmoth, Marion H. 2nd and Syptert, Nashville, TI 5-4780

INDEPENDENCE COUNTY

Calaway, W. H. North Arkansas Clinic, Batesville, RI 3-5251
Churchill, C. A. 204 East 6th, Batesville, RI 3-5194
Evans, G. C. P. O. Box 1411, Batesville, RI 3-2540
Farmer, Joseph F. 181 Broad Street, Batesville, RI 3-5251
Grasse, A. Meryl East Nigeria
Grasse, John M., Jr. Calico Rock, 297-3728
Gray, Paul P. O. Box 31, Batesville, RI 3-2321
Hathcock, Alfred H. Box 310, Batesville, RI 3-3671
Hinkle, Charles G. 946 East Boswell, Batesville, RI 3-2208
Jeffery, Paul H. Bethesda, Batesville, RI 3-2667
Johnston, O. J. T. P. O. Box 856, Batesville, RI 3-4127
Ketz, W. J. 377 East Main, Batesville, RI 3-2371
Lytle, Jimmie North Arkansas Clinic, Batesville, RI 3-5251
McAdams, V. D. San Antonio, Texas
*Monfort, J. J. Batesville
Monroe, Howard U. Mountain View, CO 9-3236
Slaughter, Bob L. P. O. Box 1411, Batesville, RI 3-2540
Smith, Bob G. North Arkansas Clinic, Batesville, RI 3-5251
Tatum, Harold M. Melbourne, 368-4344
Taylor, Chaney W. North Arkansas Clinic, Batesville, RI 3-5251
Taylor, Charles A. North Arkansas Clinic, Batesville, RI 3-5251
Walker, A. T. Mammoth Springs, 625-3232
Wyatt, Finnis Q. North Arkansas Clinic, Batesville, RI 3-5251

JACKSON COUNTY

Ashley, John D., Jr. 2nd and Laurel, Newport, JA 3-3661
Green, Roger L. 2nd and Laurel, Newport, JA 3-3661
Harris, M. Haymond 1205 McLain, Newport, JA 3-5871
Harris, Willie R. 1205 McLain, Newport, JA 3-3271
Jackson, Jabez F. 1205 McLain, Newport, JA 3-5871
Norris, R. O. Box 124, Tuckerman, 349-2250
Stanfield, Wayne 1513 Malcolm, Newport, JA 3-3321
Williams, Thomas E. 2nd and Laurel Streets, Newport, JA 3-3661
Wright, John C. 1205 McLain, Newport, JA 3-5871

JEFFERSON COUNTY

Anderson, Charles W. 1108 1/2 Poplar, Pine Bluff, JE 4-8651
Atnip, Gwyn 1409 Cherry, Pine Bluff, JE 5-3551

Barksdale, Barbara A. Hospital Building, Rison, FA 5-6224
Blackwell, Banks 1111 Cherry, Pine Bluff, JE 4-5211
Brooks, Brown 1421 Cherry, Pine Bluff, JE 5-2200
Bruce, W. H. 1400 Linden, Pine Bluff, JE 4-0244
Bryant, R. Frank 1112 Linden, Pine Bluff, JE 4-4352
Burford, Thomas G. 106 Pennsylvania, Pine Bluff, NF
Burroughs, Clement D. 1108 1/2 Poplar, Pine Bluff, JE 4-8651
*Clark, O. W. Pine Bluff
Crane, H. A., Jr. 1107 Cherry, Pine Bluff, JE 5-0833
Cunningham, T. J., Jr. 300 West 6th, Pine Bluff, JE 4-4723
Dickins, Robert D. 1003 Cherry, Pine Bluff, JE 4-8141
Ellis, Michael Jefferson Hospital, Pine Bluff, JE 5-6800
Fendley, Claude E. 1108 1/2 Poplar, Pine Bluff, JE 4-8651
Flowers, Cleon A. Masonic Temple, Pine Bluff, JE 4-5523
Flowers, Richard H. 2510 Cherry, Pine Bluff, JE 5-7280
Glasscock, R. E. 709 West 6th, Pine Bluff, JE 4-0413
Hart, J. Clyde, Jr. 1310 Cherry, Pine Bluff, JE 4-6210
Hundley, Louis K. P. O. Box 1521, Pine Bluff, JE 4-8363
Hutchison, E. L. 1724 West 42nd Avenue, Pine Bluff, JE 5-1562
Hyman, Carl E. Masonic Temple, Pine Bluff, JE 4-3365
Irwin, Raymond A. 1421 Cherry, Pine Bluff, JE 5-2200
James, William Joe 1202 Cherry, Pine Bluff, JE 5-5400
Lawlah, Clyde A. 329 1/2 Main, Pine Bluff, JE 4-1912
*Luck, Benjamin D., Jr. Pine Bluff
McDonald, Robert L. 1108 1/2 Poplar, Pine Bluff, JE 4-8651
Maynard, Ross E. National Building, Pine Bluff, JE 4-5732
Meredith, William R. 1716 West 42nd Avenue, Pine Bluff, JE 5-8727
Miller, Donald L. 1710 West 42nd Avenue, Pine Bluff, JE 5-6644
Monroe, S. C. 1421 Cherry, Pine Bluff, JE 5-2200
Morris, Harold J. 1030 Poplar, Pine Bluff, JE 4-0822
Nash, Carl W. 1310 1/2 Cherry, Pine Bluff, JE 4-2261
Nixon, William R. 709 West 6th, Pine Bluff, JE 4-0413
Payne, Virgil L. 802 West 5th, Pine Bluff (Res.), JE 4-5618
Perry, Virgil B. 1706 West 42nd Avenue, Pine Bluff, JE 5-4141
Pierce, J. R., Jr. 1712 West 42nd Avenue, Pine Bluff, JE 5-3443
Raney, Oliver C. 1720 West 42nd Avenue, Pine Bluff, JE 4-5861
Reed, E. Frank, Jr. 916 Cherry, Pine Bluff, JE 5-0121
Reed, Ulysses S. Masonic Temple, Pine Bluff, JE 4-6910
Reid, Charles W. 1113 Cherry, Pine Bluff, JE 4-0240
Rhyne, James T. 1310 Cherry, Pine Bluff, JE 4-6210
Rice, James B. 1111 West 12th, Pine Bluff, JE 5-5522
Robinette, Joseph S. 1115 Cherry, Pine Bluff, JE 5-2372
Russell, Allen K. 1024 Poplar, Pine Bluff, JE 5-2252
Searcy, James B. Box L, Altheimer, PO 6-2601
Simmons, Calvin R. 1714 West 42nd Avenue, Pine Bluff, JE 5-3213
Spillyards, J. S. Sulphur Springs Road, Pine Bluff, (Res.), JE 5-5868
Stern, Howard S. 1315 Linden, Pine Bluff, JE 4-0342
Sullenberger, A. G. Jefferson Med. Center, Pine Bluff, JE 4-4407
Talbot, George B. 1421 Cherry, Pine Bluff, JE 5-2200
Tisdale, Alfred D., Jr. 1515 West 42nd, Pine Bluff, JE 5-6800
Townsend, Thomas E. 1310 Cherry, Pine Bluff, JE 4-6210
Tracy, Charles C. 1421 Cherry, Pine Bluff, JE 5-2200
Walker, John K. 1107 Cherry, Pine Bluff, JE 5-0831
Wilkins, Walter J., Jr. 1421 Cherry, Pine Bluff, JE 5-2200
Wilson, George E., Jr. 1111 West 12th, Pine Bluff, JE 5-5522
Wineland, H. L. 1108 Poplar, Pine Bluff, JE 4-3561
Wirthlin, Milton R. 405 West 2nd, Pine Bluff, NF
Wooley, Ralph R. P. O. Box 997, Pine Bluff, JE 5-2421

JOHNSON COUNTY

Callaway, James R. P. O. Box 179, Clarksville, PL 4-6340
Kolb, James M., Jr. 4301 West Markham, Little Rock, MO 6-9461
Kolb, James M., Sr. P. O. Box 472, Clarksville, PL 4-2007
Manley, Robert H. 307 East Main, Clarksville, PL 4-3820
Scarborough, W. R. 109 North Fulton, Clarksville, PL 4-2512
Shrigley, Guy P. 416 Sevier, Clarksville, PL 4-2043

LAFAYETTE COUNTY

Beaty, W. R. 119 Spruce, Lewisville, 921-4353
Cross, Charles 317 Main, Stamps, LE 3-4561
Harrison, R. H. 4301 West Markham, Little Rock, MO 6-9461
Hunter, Robert W. P. O. Box 428, Lewisville, 921-4222
Lee, Willie J. Box 276, Stamps, LE 3-4461

LAWRENCE COUNTY

Cruse, E. J. Box 116, Black Rock, TR 8-6209
Elders, J. B. 321 S. W. 3rd, Walnut Ridge, TU 6-3162
Glenn, Wayne B. 4301 West Markham, Little Rock, MO 6-9461
Gregory, Lloyd F. Box 68, Imboden, VO 9-2274
Hickman, James H. Highway 25 West, Walnut Ridge, TU 6-6222
Joseph, Ralph Highway 25 West, Walnut Ridge, TU 6-3211
Whittington, J. J., III Highway 25 West, Walnut Ridge, TU 6-3552

LEE COUNTY

Dozier, Floyd S. 29 North Poplar, Marianna, CY 4-2107
Fields, E. C. Nowell Highway 1 South, Marianna, CY 4-2616
Gray, Dwight W. 110 West Chestnut, Marianna, CY 4-3131
Hays, William C., Jr. 100 West Main, Marianna, CY 4-2323
McLendon, Mac 29 West Columbia, Marianna, CY 4-2711

LINCOLN COUNTY

Dixon, Charles W. P. O. Drawer "U", Gould, CO 3-4522
Freeland, James W. Box 608, Star City, MA 8-4226
Petty, Richard C. Box 638, Star City, MA 8-4292

LITTLE RIVER COUNTY

Armstrong, James D. Ashdown Clinic, Ashdown, TW 8-3306
Peacock, N. W., Jr. Box 667, Ashdown, TW 8-3306
Shelton, Joseph G., Jr. Box 697, Ashdown, TW 8-3306

LOGAN COUNTY

Center, W. B. State Sanatorium, OR 5-2121
Chalfant, Charles H. 121 East Third, Booneville, 675-2101
Facundus, Bruce E. 210 Ellsworth, Booneville, OR 5-2300
Jones, W. Duane State Sanatorium, OR 5-2121
McConnell, Samuel P. 113 West Main, Booneville, OR 5-3232
Maupin, James L. State Sanatorium, 675-2101
Parker, B. G. 121 East 3rd, Booneville, OR 5-2101
Redman, John W. Tucson, Arizona
Smiley, George W. State Sanatorium, OR 5-2121
Smith, Charles McD. Paris, YO 3-2780
Smith, James T. Paris, YO 3-3221
Smith, John J. Lead, South Dakota

LONOKE COUNTY

Cooper, Edward J. 520 Northeast 4th, England, VI 2-2686
Gartman, J. F. Court Street, Carlisle, LU 2-2596
Holmes, B. E. 305 West Front, Lonoke, OR 6-6560
Inman, Fred C., Jr. Court Street, Carlisle, LU 2-2596
McEntire, H. E. 1702 West 47th, North Little Rock, SK 3-1116
Martin, J. A. Box 257, Cabot, BA 4-9086
*Parker, William M. DeValls Bluff
Des Arc
Schumann, Gerald M. General Hospital, Des Arc, 256-4312
Strickland, Luther J. Del City, Oklahoma
Washburn, C. Yulan 111 West Main, Cabot, BA 4-2141

MILLER COUNTY

Barnes, Walter C., Jr. 401 East 5th, Texarkana, 773-2121
Bransford, Robert M. 401 East 5th, Texarkana, 773-2121
Brown, J. Royston Route 3, Box 540L, Texarkana, 793-4511
Burnett, J. W. 414 Hazel, Texarkana, 774-7301
Burroughs, James C. 401 East 5th, Texarkana, 773-2121
Cantrell, Frank P. 4800 Loop Drive, Texarkana, 792-7151
Causey, Hunter A. Cotton Belt RR Hospital, Texarkana, 772-1113
Chappell, Robert H. Box 1288, Texarkana, 794-5943
Davis, Elmer L. 317 State Line Avenue, Texarkana, 792-8231
Dodge, John McLaurin 4800 Loop Drive, Texarkana, 792-7151
Edmonson, Retia L. 916 Main, Texarkana, 793-5592
Gary, Lloyd E. 4800 Loop Drive, Texarkana, 792-7151
Goel, Andrew G. 119 East 6th, Texarkana, 774-4702
Good, Louis P. 401 East 5th, Texarkana, 773-2121
Griffin, John S. 4800 Loop Drive, Texarkana, 792-7151
Hardin, Robert P. St. Michael's Hospital, Texarkana, 774-7297
Harrell, William B., Jr. 317 State Line, Texarkana, 792-8231
Harrison, James W. 401 East 5th, Texarkana, 773-2121
Hughes, Paul 401 East 5th, Texarkana, 773-2121
Jones, John Walter 401 East 5th, Texarkana, 773-2121
Kemp, Karlton H. 408 Hazel, Texarkana, 774-5181
Kirkpatrick, R. R. 119 East 6th, Texarkana, 772-0222
Kittrell, J. B. 610 Walnut, Texarkana, 774-6107
Knight, Norris C., Jr. 619 Main, Texarkana, 792-7151
Laws, J. K. St. Michael's Hospital, Texarkana, 774-7297
Leslie, Charles L. 315 East 5th, Texarkana, 772-0231
Lowe, Betty Ann 401 East 5th, Texarkana, 773-2121
Pickett, R. W. 226 East 6th, Texarkana, 774-5622
Robinson, William D. 401 East 5th, Texarkana, 773-2121
Rodgers, N. L. 401 East 5th, Texarkana, 773-2121
Rushing, Louis U. P. O. Box 1912, Texarkana, 792-1191
Schneble, Richard J. 401 East 5th, Texarkana, 773-2121
Sears, Joseph W. 401 East 5th, Texarkana, 773-2121
Smith, William D. 119 East 6th, Texarkana, 772-0111
Teasley, Gerald H. 401 East 5th, Texarkana, 773-2121
Thompson, Charles A. 4800 Loop Drive, Texarkana, 792-7151
Thompson, Thomas Paul 401 East 5th, Texarkana, 773-2121
Thornton, William D. 4800 Loop Drive, Texarkana, 792-7151
Wakefield, Elmer G. P. O. Box 2035, Texarkana, 772-0853
Wicker, Eugene H. St. Michael's Hospital, Texarkana, 773-2651
Wilhelm, Frieda McKinney, Texas, NF
Williams, J. F. 220 West 5th, Texarkana, 793-3032
Wren, Herbert B. 4800 Loop Drive, Texarkana, 792-7151
Yarbrough, Charles P. 1102 Main, Texarkana, 793-5608
Young, Mitchell 322 East 5th, Texarkana, 772-8264

MISSISSIPPI COUNTY

Ball, E. H. 304 North First, Blytheville, PO 3-4121
Brock, Charles C., Jr. 527 North Sixth, Blytheville, PO 3-8118
Brownson, J. F. Tucson, Arizona
Campbell, Charles E., Jr. 519 North 6th, Blytheville, PO 3-0855
Elliot, J. Q. 209 West Ash, Blytheville, PO 3-4548
*Ellis, N. B. Wilson
Fairley, Eldon Box 71, Osceola, LO 3-2686
Fairley, Julian Box 71, Osceola, LO 3-2686
Files, James B. Columbia, Missouri
Go, Alex S. Y. 2004 West Main, Blytheville, PO 3-7223
Godley, M. L. 527 North 6th, Blytheville, NF
Green, W. O., Jr. 903 Chickasawba, Blytheville, PO 3-6802
Hard, John W. 527 North 6th, Blytheville, PO 3-8118
Hart, Sybil R. Chickasawba Hospital, Blytheville, PO 3-8107
Hart, Wade A. Chickasawba Hospital, Blytheville, PO 3-8107
Holcomb, C. E. 511 North 6th, Blytheville, PO 3-3922
Hubener, L. L. 201 East Main, Blytheville, PO 2-2021
Hubener, Louis F. Gainesville, Florida
Johnson, I. R. 510 West Main, Blytheville, PO 2-2041
Johnson, R. L. P. O. Box 414, Blytheville, PO 3-6201
Jones, Herbert 529 North 10th, Blytheville, PO 3-8032
Lawrence, Jesse A. Adams Street, Wilson, OL 5-2411
Massey, Lorenzo D. 307 West Hale, Osceola, LO 3-6242
Osborne, Merrill J. 527 North 6th, Blytheville, PO 3-8118
Polk, J. T. Keiser, 526-2121
Pollock, George D. 608 West Lee, Osceola, LO 3-2608
Rainwater, W. T. 527 North 6th, Blytheville, PO 3-8118
Rhodes, R. F. 608 West Lee, Osceola, LO 3-2608
Rodman, T. N. Box 260, Leachville, 539-6337

Shaneyfelt, E. A. Box 468, Manila, S61-4421
Sims, Hunter, Jr. 529 North 10th, Blytheville, PO 3-8032
Sims, Hunter, Sr. 107 North 2nd, Blytheville, PO 3-4458
Taylor, G. Wayne P. O. Box 290, Leachville, 539-6337
Utley, F. E. 515 North 6th, Blytheville, PO 3-4575
Webb, James Jackson (Jack) 520 W. Main, Blytheville, PO 2-2131
Workman, W. W. 527 North 6th, Blytheville, PO 3-8118

MONROE COUNTY

Dalton, M. L. 510 Main, Brinkley, RE 4-4161
David, N. C., Jr. 108 West Ash, Brinkley, RE 4-2212
Bank of Brinkley
McKnight, Edward D. Building, Brinkley, RE 4-4234
Pupsta, Benedict F. Box 432, Clarendon, 747-3321
Stone, Herd E., Jr. Holly Grove, 462-3393
Walker, Walter L. 114 South New Orleans, Brinkley, RE 4-3242
Williams, J. P., Jr. 127 South New Orleans, Brinkley, RE 4-1331

NEVADA COUNTY

Arnold, William O. Prescott, NF
Avery, Charles D. 427 E. 6th, Prescott, 887-2625
Cox, James E. 305 Holly, Prescott, 887-3010
Crow, H. Blake 327 East 2nd, Prescott, 887-3846
Hairston, Glenn G. 317 E. 3rd, Prescott, 887-2211
Harrell, L. J. 117 E. 2nd, Prescott, 887-2312
Hesterly, Charles A. 419 East 6th, Prescott, 887-3808
Hesterly, Jacob B. 419 East 6th, Prescott, 887-3328

OUACHITA COUNTY

Dalton, Perry J. 415 Hospital Drive, S.W., Camden, TE 6-5013
Dedman, J. L., Jr. 415 Hospital Drive, S.W., Camden, TE 6-5013
Drewrey, L. E. 530 Jefferson St., S.W., Camden, TE 6-5058
Ellis, Joseph L. 957 McCullough, Camden (Res.), TE 6-2146
Ellis, William Bruce Stephens, ST 6-2551
Fohn, Charles H. 110 Harrison Avenue, S.W., Camden, TE 6-5088
Guthrie, James 530 Jefferson St., S.W., Camden, TE 6-5058
Hawley, James W. P. O. Box 38, Camden, TE 6-5710
Hearnberger, Henry Topeka, Kansas
Hout, Judson N. 530 Jefferson St., S.W., Camden, TE 6-5058
Jameson, John B., Jr. 110 Harrison, S.W., Camden, TE 6-5088
Killough, Larry R. 530 Jefferson, Camden, TE 6-5058
King, B. D. Ouachita County Hospital, Camden, TE 6-9325
Lewis, R. C. P. O. Box 675, Camden, TE 6-5753
Meek, Tom J. 415 Hospital Drive, S.W., Camden, TE 6-5013
Miller, John H. 415 Hospital Drive, S.W., Camden, TE 6-5013
Ozment, L. V. 530 Jefferson St., S.W., Camden, TE 6-5058
*Parlee, Norf G. Camden
Pruitt, Willard H. 416 Hospital Drive, Camden, TE 6-5744
Robins, R. B. 300 North State Street, Chicago, Illinois, 321-1116
Robins, Rowland R. State Sanatorium, Booneville, OR 5-2121

PHILLIPS COUNTY

Barrow, John H. Oakland Avenue, Helena, HI 4-2622
Bell, L. J. Pat 215 Porter, Helena, HI 4-2163
Berger, A. A. 801 Perry, Helena, HI 4-2781
Biggs, William W. Helena Hospital, Helena, HI 4-6411
Butts, James W. 708 McDonough, Helena, HI 4-2006
Capes, Bernard 130 Plaza, West Helena, JU 5-2621
Chrestman, R. L., Jr. 631 Oakland Avenue, Helena, HI 4-3294
Connolly, William B. 173 Oakland, Helena (Res.), HI 4-7756
Ellis, William A., Jr. 603 Porter, Helena, HI 4-3037
Faulkner, Henry N. 513 Porter, Helena, HI 4-7401
Hill, William K. 513 Porter, Helena, HI 4-7401
Kirkman, C. M. T. 1105 Perry, Helena, HI 4-2712
Kurts, Evan J. 308 Plaza, West Helena, JU 5-2144
McCarty, C. P. 513 Porter, Helena, HI 4-7401
Miller, Robert D., Jr. 112 Walnut, Helena, HI 4-2531
Oldham, H. B. 105 South 3rd, West Helena, JU 5-7581
Paine, W. T. 513 Porter, Helena, HI 4-7401
Tonymon, Daniel Box 278, Marvell, 829-2721
Wise, James E., Jr. Box 546, Marvell, 829-2386

POLK COUNTY

Austin, Calvin D. 606 Mena, Mena, EX 4-1441
Hefner, David P. 600 West 7th, Mena, EX 4-3344
Redman, Pierre 513 Mena, Mena, EX 4-2277
Rogers, Henry N. 600 West 7th, Mena, EX 4-3344
Wood, John P. 907 Mena, Mena, EX 4-4221

POPE-YELL COUNTY

Ashcraft, Ted E. 809 West Main, Russellville, 967-2156
Bachman, David S. 511 West Main, Russellville, 967-2345
Draeger, Louis A. Danville, HY 5-2252
Gardner, Ellis P. O. Box 400, Russellville, 967-2242
Gavlas, Frank E. 310 North 2nd, Dardanelle, CA 9-4225
Harris, Walter P. 522 Main, Danville, HY 5-2714
Heidgen, Martin F. 1808 West Main, Russellville, 967-1333
Henry, J. Arnold 511 West Main, Russellville, 967-2345
King, William Ernest, Jr. 511 West Main, Russellville, 967-2345
Lane, Walter H., Jr. 625 Water, Dover, AC 8-3305
Linton, Arthur C. Hector, BU 4-3011
Lowrey, Douglas H. 809 West Main, Russellville, 967-2156
Luker, Jerome 505 Union, Dardanelle, CA 9-4172
Martin, Damon G. H. Ola, HU 9-5241
Millard, Roy I. 511 West Main, Russellville, 967-2345
Mobley, Max James 111 North El Paso, Russellville, 967-2242
McNamara, William L. St. Mary's Hospital, Russellville, 967-2841
Pennington, James O. Box 157, Ola, HU 9-5241
Ring, Gene D. 505 Union, Dardanelle, CA 9-4172
Teeter, Brooks R. 500 S. Glenwood, Russellville (Res.), 967-4545
Webb, Lewis A. 209 Locust, Dardanelle, 229-3329

Wilkins, Charles F.511 West Main, Russellville, 967-2345
Williams, David M.809 West Main, Russellville, 967-2156

PULASKI COUNTY

Abbott, William Wood409 Shamrock, Little Rock, MO 6-2471
Abraham, James H.900 North University, Little Rock, MO 4-3951
Adamez, J. H.Donaghey Building, Little Rock, FR 5-5547
Alford, Dale115 East Capitol, Little Rock, FR 5-0111
Allen, E. Stewart413 North University, Little Rock, MO 3-8309
Allen, Hoyt R.Donaghey Building, Little Rock, FR 2-5518
Armstrong, Howard M.12th and Bishop, Little Rock, FR 2-5626
Ault, C. C.V. A. Hospital, North Little Rock, FR 2-8361
Austin, Lester K., Jr.802 North University, Little Rock, MO 4-3901
Autry, Daniel H.1900 North Tyler, Little Rock (Res.), MO 3-7293
Bailey, H. A. Ted, Jr.1610 West 3rd, Little Rock, FR 2-1811
Baldwin, Deane G.802 North University, Little Rock, MO 4-3901
Barnhard, Fay M.4301 West Markham, Little Rock, MO 6-9461
Barnhard, Howard J.4301 West Markham, Little Rock, MO 6-9461
Bauer, Frank M.500 So. University, Little Rock, MO 4-2245
Bearden, James R.Baptist Hospital, Little Rock, FR 4-3351
Becket, N. J.401 Hall Building, Little Rock, FR 5-4419
Bennett, B. A.809 North Arthur, Little Rock, MO 4-2964
Bennett, Eaton W.Arkansas State Hospital, Little Rock, MO 6-0181
Berry, Daislee H.4301 West Markham, Little Rock, MO 6-9461
Berry, Frederick B.500 South University, Little Rock, MO 6-0222
Betts, Charles S.500 South University, Little Rock, MO 3-9169
Beverly, Nolan F.St. Vincent Infirmary, Little Rock, MO 4-4261
Bizzell, RossExchange Building, Little Rock, FR 6-2309
Black, Hal R., Jr.Donaghey Building, Little Rock, FR 2-7265
Black, Millard W.705 North Ash, Little Rock, MO 3-5413
Blakely, R. M.211 Crystal Court, Little Rock (Res.), MO 3-2562
Bowker, John H.4301 West Markham, Little Rock, MO 6-9461
Bradburn, Curry B., Jr.Donaghey Building, Little Rock, FR 2-7265
Braun, Esmond4301 West Markham, Little Rock, MO 6-9461

Arkansas

Brenner, George H., Jr.Baptist Hospital, Little Rock, FR 4-3351
Briggs, B. P.500 South University, Little Rock, MO 4-4117
Brinkley, Roy A.1111 Bishop, Little Rock, FR 5-1177
Brizzolara, A. J.500 South University, Little Rock, MO 4-4381
Broach, R. Fred415 West 18th, Little Rock (Res.), FR 4-0873
Brown, Martha M.2014 Blvd., Little Rock, MO 3-7697
Brown, T. Duell1120 Marshall, Little Rock, FR 5-3376
Brown, Willis E.4301 West Markham, Little Rock, MO 6-9461
Buchanan, F. R.500 South University, Little Rock, MO 4-4324
Buchanan, Gilbert A.500 South University, Little Rock, MO 4-4147
Buchman, Joseph A.500 South University, Little Rock, MO 6-0222
Bumpas, Joe H.St. Vincent Infirmary, Little Rock, MO 4-4261
Burger, Robert A.Ark. Baptist Hospital, Little Rock, FR 4-3351
Busby, John V.4301 W. Markham, Little Rock, MO 6-9461
Byrd, Lucas M., Jr.36 Lake Shore Drive, Little Rock, LO 5-6046
Calcote, Robert A.Donaghey Building, Little Rock, FR 4-5969
Calhoun, Joseph D.500 South University, Little Rock, MO 4-3078
Campbell, James W.St. Vincent Infirmary, Little Rock, MO 4-4261
Carnahan, Robert G.State Hospital, Little Rock, MO 6-0181
Carruthers, F. WalterDonaghey Building, Little Rock, FR 5-3372
Cazort, Alan G.4001 West Capitol, Little Rock, MO 4-1596
Chakales, Harold H.4301 West Markham, Little Rock, MO 4-2671
Cheairs, D. B.721 West 2nd, Little Rock, FR 4-2272
Choate, Hoyt L.1120 Marshall, Little Rock, FR 2-2125
Christeson, William W.Donaghey Building, Little Rock, FR 6-2409
Christian, John D.5520 West Markham, Little Rock, MO 6-9431
Chudy, Amail1801 Maple, North Little Rock, FR 2-0119
Church, B. L.321 Maple, North Little Rock, FR 4-7796
Church, Marion M.321 Maple, North Little Rock, FR 5-1106
Cohen, Louis A.V. A. Hospital, Little Rock, FR 4-3331

4700 Crestwood

Compton, John NyeDrive, Little Rock (Res.), MO 3-5876
Cook, Raymond C.601 Scott, Little Rock, FR 5-8273
Cooper, William G.500 South University, Little Rock, MO 6-0149
Cope, Ellis P.Donaghey Building, Little Rock, FR 4-8884
Cornett, James K.5905 R Street, Little Rock, MO 3-6958
Cosgrove, K. W., Jr.516 Scott, Little Rock, FR 4-6338
*Cosgrove, K. W., Sr.Little Rock
Craig, Marion S., Jr.500 South University, Little Rock, MO 6-0106
Crews, James Travis4316 West Markham, Little Rock, MO 4-2585
Cross, J. B.500 South University, Little Rock, MO 6-0126
Crow, Jan W.813 Marshall Road, Jacksonville, 982-2141
Cull, S. T. W.902 West 2nd, Little Rock, FR 5-8073
Cullen, Phillip T.500 South University, Little Rock, MO 4-4171
Cummins, Bryce31 Broadmoor Drive, Little Rock, LO 5-7450
Daghetly, J. D.111 Shamrock Drive, Little Rock, MO 3-2849
Davis, Malcolm W.V. A. Hospital, North Little Rock, FR 2-8361
Dean, Gilbert O.Donaghey Building, Little Rock, FR 5-7784
Deer, Philip James, Jr.601 Scott, Little Rock, FR 5-8273
Dilday, Thomas F., Jr.500 So. University, Little Rock, MO 6-0381
Dillaha, Calvin J.500 South University, Little Rock, MO 4-4161
Dishongh, Howard A.Donaghey Building, Little Rock, FR 4-0248
Dodge, Eva F.Detroit, Michigan
Donaldson, J. K.101 West 24th, Little Rock, FR 2-7546
Downs, J. W.500 South University, Little Rock, MO 6-5922
Drompp, Benjamin W.4301 W. Markham, Little Rock, MO 6-9461
Dulaney, Frank M., Jr.1120 Marshall, Little Rock, FR 4-9568
Dungan, W. T.500 South University, Little Rock, MO 4-4117
Durham, James W.112 North Bailey, Jacksonville, 982-2125
Eardley, Robert J.State Hospital, Little Rock, MO 6-0181
Easley, Edgar J.State Health Dept., Little Rock, FR 4-6361
Ebert, Richard V.4301 West Markham, Little Rock, MO 6-9461
Farris, Guy R.6213 Lee Avenue, Little Rock, MO 4-2115
Fein, Norman N.Waldon Building, Little Rock, FR 4-8441

Pike Plaza Shopping

Fielder, Charles R.Center, North Little Rock, FR 2-0192
Fish, Stewart A.4301 West Markham, Little Rock, MO 6-9461
Fitch, Coy Dean4301 West Markham, Little Rock, MO 6-9461
Fitzgibbon, Carney, Jr.410 South Martin, Little Rock, MO 6-8861
Flack, James V., Jr.814 North University, Little Rock, MO 3-9474
Fletcher, Elizabeth D.Donaghey Building, Little Rock, FR 4-0248
Fletcher, T. M.500 South University, Little Rock, MO 4-3021

Floyd, Bill G.1120 Marshall, Little Rock, FR 2-2125
Forbis, Orle L., Jr.4301 West Markham, Little Rock, MO 6-9461
Foster, Julian L.3500 South University, Little Rock, LO 5-0366
Fowler, Shelton F.Ark. State Hospital, Little Rock, MO 6-0181
Fulmer, H. RayDonaghey Building, Little Rock, FR 4-1649
Fulmer, John M.5410 West Markham, Little Rock, MO 4-3142
Fulton, William L.513 Main, North Little Rock, FR 5-2433
Gates, Stanley M.Veterans Administration, Little Rock, FR 4-3331
Gay, Ellery C., Jr.New Orleans, Louisiana
Gay, Ellery C., Sr.Rivercliff Apts., Little Rock (Res.), MO 3-1851
Gentling, Allen A.St. Vincent Infirmary, Little Rock, MO 4-4261
Gerald, Barry E.Oakland, California
Gibbins, Jack E.2309 Durwood, Little Rock, MO 6-8712
Gillespie, A. Tharp500 South University, Little Rock, MO 4-3838
Gillespie, E. Clark5600 West Markham, Little Rock, MO 3-6313
Good, Henry H.12th and Bishop, Little Rock, FR 2-0292
Gordon, Vida H.4301 West Markham, Little Rock, MO 6-9461
Gosser, Bob L.Pike Plaza Center, North Little Rock, FR 6-3486
Graham, G. Grimsley5322 West Markham, Little Rock, MO 3-9433
Graupner, Kathryn I.V. A. Hospital, North Little Rock, FR 2-8361
Gray, Edwin F.Donaghey Building, Little Rock, FR 6-1321
Gray, Herschel F.413 Scott, Little Rock, FR 5-6416
Greifenstein, F. E.4301 West Markham, Little Rock, MO 6-9461
Greutter, John E., Jr.Donaghey Building, Little Rock, FR 2-6139
Grimes, Harry Austin5324 West Markham, Little Rock, MO 6-5407
Growdon, James H.500 South University, Little Rock, MO 4-4146
Hagler, James L.500 South University, Little Rock, MO 4-4377
Hall, Alastair D.500 South University, Little Rock, MO 4-0027
Hamilton, Wilburn M.Donaghey Building, Little Rock, FR 4-8633
Hara, Masaki4301 West Markham, Little Rock, MO 6-9461
Hardeman, Daniel R.1014 West 3rd, Little Rock, FR 2-4684
*Hardin, Joe H.Little Rock
Harper, Ernest H.Pike Plaza, North Little Rock, FR 4-4071
Harrel, J. A., Jr.4601 Woodlawn, Little Rock, MO 3-8374
Harris, William T.500 South University, Little Rock, MO 4-3914
Harrison, A. ValeWaldon Building, Little Rock, FR 4-3815
Hawley, Harold B.4301 West Markham, Little Rock, MO 6-9461
Hayes, James Donald, Donaghey Building, Little Rock, FR 4-0219
Hayes, J. Harry, Jr.500 South University, Little Rock, MO 6-2811
Headstream, James W.500 So. University, Little Rock, MO 4-4364
Hedges, Harold H.814 North University, Little Rock, MO 3-9474
Hefley, Bill F.4001 West Capitol, Little Rock, MO 4-1596
Henker, Fred O., III4301 West Markham, Little Rock, MO 6-9461
Henry, Charles R.500 South University, Little Rock, MO 4-4191
Henry, John Forrest, Jr.516 Scott, Little Rock, FR 4-6338
Henry, Marion J.6213 Lee Avenue, Little Rock, MO 4-4044
Henry, Robert L., Jr.6213 Lee Avenue, Little Rock, MO 4-4044
Herron, John T.State Health Dept., Little Rock, FR 4-6361
Hickey, Joseph P.P. O. Box 2856, Little Rock, FR 4-3941
Hoke, Roy D.4301 West Markham, Little Rock, MO 6-9461
*Hill, Harlan H.Little Rock
Holitik, George F.3200 Bryant, Little Rock, LO 5-8261
Hollenberg, Henry500 South University, Little Rock, MO 4-4747
Holles, N. T.Waldon Building, Little Rock, FR 4-4161
Holmes, Harlan C.1120 Marshall, Little Rock, FR 2-5040
Holt, L. G.Donaghey Building, Little Rock, FR 4-8806
Honeycutt, Thomas D.509 Cross, Little Rock, FR 6-1116
Honeycutt, W. Mage500 South University, Little Rock, MO 4-4161
Hoover, Paul W.1120 Marshall, Little Rock, FR 4-0789
Howard, John G., Jr.500 South University, Little Rock, MO 3-1120
Hudgins, Paul T.1120 Marshall, Little Rock, FR 2-7502
Hundley, John M.412 Cross, Little Rock, FR 5-5338
Hyatt, David T.Donaghey Building, Little Rock, FR 2-3816
Ish, G. W. S., Sr.Century Building, Little Rock, FR 2-7025
Jackson, George W.State Hospital, Little Rock, MO 6-0181
Jackson, Morris A.1304 Wright Avenue, Little Rock, FR 4-7940
Jansen, G. Thomas500 South University, Little Rock, MO 4-4161
Jarvis, Frederick D., Jr.1120 Marshall, Little Rock, FR 4-7976
Johnson, Glenn H.3 Armistead Road, Little Rock, MO 3-0216
Johnson, Henry D.500 South University, Little Rock, MO 4-4171
Johnson, James A.112 North Bailey, Jacksonville, 982-2125
Johnston, Thomas G.5512 West Markham, Little Rock, MO 4-3904
Jones, Kenneth G.4300 West Markham, Little Rock, MO 6-9494
Jones, Robert D.500 South University, Little Rock, MO 4-4747
Jones, Samuel T.4301 West Markham, Little Rock, MO 6-9461
Jones, William N.500 South University, Little Rock, MO 4-0418
Jordan, William K.500 South University, Little Rock, MO 6-6353
Jouett, W. RayDonaghey Building, Little Rock, FR 5-5547
Juniper, Kerrison, Jr.4301 West Markham, Little Rock, MO 6-9461
Junkin, RuthP. O. Box 4082, North Little Rock, NF
Kagy, John K.8609-F West Markham, Little Rock, MO 4-4040
Kahn, Alfred, Jr.1300 West 6th, Little Rock, FR 4-5589
Kennedy, Chas. H. 3115 J. F. Kndy. Blvd., N. Little Rock, SK 3-9464
Kilbury, M. J., Jr.500 South University, Little Rock, MO 4-1322
Kilbury, M. J., Sr.Donaghey Building, Little Rock, FR 2-3822
Kirby, Jesse M.Route I, Box 560, North Little Rock, WI 5-3055
Kittler, Frederick J.4001 West Capitol, Little Rock, MO 4-1596
Kolb, Agnes1522 West 10th, Little Rock, FR 2-3491
Kolb, B. T.1522 West 10th, Little Rock, FR 2-3491
Kolb, William Payton1120 Marshall, Little Rock, FR 2-3325
Kozberg, OscarArk. State Hospital, Little Rock, MO 6-0181
Kreth, K. M.5800 West Markham, Little Rock, MO 3-9441
Kumpuris, Frank G.415 North University, Little Rock, MO 4-1521
Kuperman, Irving5300 Mabelvale Pike, Little Rock, LO 5-5911
Kuykendall, Sam J.500 South University, Little Rock, MO 4-2736
Lamb, William A.4001 West 11th, Little Rock, MO 3-1452
Lane, John W.Baptist Hospital, Little Rock, FR 4-3351
Langston, Harold D.Baptist Hospital, Little Rock, FR 4-3351
Laurens, John501 North University, Little Rock, MO 4-0390
Lawson, Mason G.701 West Markham, Little Rock, FR 4-4311
Lee, J. Fred5512 West Markham, Little Rock, MO 4-3904
Lester, Joe K.1518 Main, North Little Rock, FR 5-0102
Levy, Jerome S.500 South University, Little Rock, MO 4-4181
Lewis, W. S.900 North University, Little Rock, MO 4-3951
Lilly, Kenneth E.7901 Ark-Mo Hwy., North Little Rock, TE 5-4441
Lincoln, Ben M.5322 West Markham, Little Rock, MO 3-9433
Logue, Richard M.601 North University, Little Rock, MO 6-0144
Longstreth, Alvin E.1312 Fair Park, Little Rock, MO 3-5545

Ludwig, Frank R. 27th & Pike Ave., North Little Rock, FR 6-3426
 Lyons, Virgle E. 115 E. Broadway, North Little Rock, FR 2-5246
 McCaskill, Melvin R. 500 South University, Little Rock, MO 4-4131
 McClain, Monroe D. 1120 Marshall, Little Rock, MO 4-7484
 McClintock, Everett M. 5600 W. Markham, Little Rock, MO 3-6313
 McGinnis, Max R. 500 South University, Little Rock, MO 4-4131
 McKenzie, Charles N. 412 Cross, Little Rock, FR 5-5338
 McMillin, Lamar 1311 Louisiana, Little Rock, FR 4-6531
 McMillion, Stephen D. 1800 Maple, North Little Rock, FR 2-3575
 McRae, Washington M. 819 Ridgecrest, Little Rock, MO 3-8272
 Mallory, George L. 111 Lynch Drive, North Little Rock, WI 5-9271
 Martin, Lee A. 500 South University, Little Rock, MO 4-4364
 Mathis, Edwin F. 4601 Woodlawn, Little Rock, MO 3-8374
 Matthews, Robert R. 4301 West Markham, Little Rock, MO 6-9461
 Means, Ben Dallas 4124 West 11th, Little Rock, MO 3-0213
 Means, Paul N. 1120 Marshall, Little Rock, FR 2-7502

Arkansas
 Medart, William S., Jr. Baptist Hospital, Little Rock, FR 4-3351
 Miles, David A. V. A. Hospital, Little Rock, FR 4-3331
 Millard, Irvin L. 4300 West Markham, Little Rock, MO 6-9494
 Miller, Harold N. Port Charlotte, Florida
 Milner, E. L. 500 South University, Little Rock, MO 4-4318
 Mitchell, George K. 900 North University, Little Rock, MO 4-3951
 Molholm, Hans B. State Hospital, Little Rock, MO 6-0181
 Moore, Jim J. 500 South University, Little Rock, MO 6-5466
 Moore, Rex N. 813 Marshall Road, Jacksonville, 982-2141
 Morgan, F. E. 3225 J. F. Kennedy Blvd., N. Little Rock, SK 3-4772
 Morris, Woodbridge E. 5324 W. Markham, Little Rock, MO 4-2111
 Morrison, James R. St. Vincent Infirmary, Little Rock, MO 4-4261
 Murphy, Horace R. 4300 West Markham, Little Rock, MO 6-9494
 Murphy, James E., Jr. 1800 Maple, North Little Rock, FR 6-3296
 Murray, Rosemary C. State Hospital, Little Rock, MO 6-0181
 Napper, George S. 513 Main, North Little Rock, FR 5-2433
 Nettles, John B. 4301 West Markham, Little Rock, MO 6-9461
 Newbern, David H. St. Vincent Infirmary, Little Rock, MO 4-4261
 Nisbett, James M. 517 East 7th, Little Rock, FR 5-2252
 Nixon, Ewing M. 1000 Wolfe, Little Rock, FR 5-2446
 Norton, Joseph A. Donaghey Building, Little Rock, FR 6-1814
 Oates, Gordon P. 1710 West 10th, Little Rock, FR 4-9332
 Ogden, Mahlon D. 1400 West Capitol, Little Rock, FR 2-0035
 Oglesby, W. R. 5302 New Conway Hwy., N. Little Rock, SK 3-7516
 O'Neal, Walter H. 1111 Bishop, Little Rock, FR 5-1177
 Orr, William S. 500 So. University, Little Rock, MO 4-3043
 Padberg, Frank T. 500 So. University, Little Rock, MO 6-5466
 Pappas, James J. 1610 West 3rd, Little Rock, FR 2-1811
 Pehrson, Nils C. 500 South University, Little Rock, MO 6-0381
 Peters, John E. 4301 West Markham, Little Rock, MO 6-9461
 Phillips, Bert L. 1403 Main, North Little Rock, FR 6-2840
 Phillips, Samuel Donaghey Building, Little Rock, FR 4-9534
 Phipps, Woodrow E., Jr. 108 E. 4th, No. Little Rock, FR 4-4821
 Pierce, John A. 4301 West Markham, Little Rock, MO 6-9461
 Pollard, Arlee E. St. Vincent Infirmary, Little Rock, MO 4-4261
 Pool, Chalmers S. VA Hospital, North Little Rock, FR 2-8361
 Porter, James O., Jr. 500 South University, Little Rock, MO 4-3838
 *Porter, William I. Little Rock
 Price, Ben O. 500 South University, Little Rock, MO 4-4166
 Pringos, Andrew A. Nat'l Old Line Bldg., Little Rock, FR 5-3231
 Proctor, Clark B. V.A. Hospital, North Little Rock, FR 2-8361
 Quittner, Howard 4301 West Markham, Little Rock, MO 6-9461

State Board of
 Health, Little Rock, FR 4-6361

Ramsay, Reginald C., Jr. Little Rock
 *Raney, Thomas J., Jr. Little Rock
 Reagan, Grady W. 124 Crystal, Little Rock (Res.), MO 3-2670
 Reagan, W. Paul State Health Building, Little Rock, FR 4-6361
 Reed, Ewing C., Jr. 1119 Bishop, Little Rock, FR 4-3716
 Reese, William G. 4301 West Markham, Little Rock, MO 6-9461
 Regnier, George G. 500 S. University, Little Rock, MO 4-3914
 Rhinehart, William J. St. Vincent Infirmary, Little Rock, MO 4-4261
 Richardson, Mary E. 4301 West Markham, Little Rock, MO 6-9461
 Richardson, Robert E. 500 South University, Little Rock, MO 4-4321
 Richmond, Samuel V. Donaghey Building, Little Rock, FR 2-5101
 Riegler, Nicholas W., Jr. 1024 Scott, Little Rock, FR 5-3326
 Riegler, Nicholas W., Sr. 1024 Scott, Little Rock, FR 5-3326
 Riggin, John T. 4301 West Markham, Little Rock, MO 6-9461
 Riley, William H. 3500 South University, Little Rock, LO 5-0366
 Ritchie, E. J. 1401 Main, North Little Rock, FR 2-5253
 Robinson, J. M. Raines Building, Little Rock, FR 2-0351
 Rodgers, Clyde D. 500 South University, Little Rock, MO 4-4131
 Rosenbaum, Carl A. Donaghey Building, Little Rock, FR 2-5101
 Ross, Robert W. 4316 West Markham, Little Rock, MO 4-2585
 Ross, S. William 900 North University, Little Rock, MO 4-3951
 Rothert, Frances C. Guatemala City
 Samuel, John M. 805 West 4th, Little Rock, FR 5-6468
 Sanderlin, Joseph H. Donaghey Building, Little Rock, FR 5-7228
 Satterfield, John V. 500 South University, Little Rock, MO 6-5488
 Schneider, Mildred F. V.A. Hospital, North Little Rock, FR 2-8361
 Schratz, Bruce E. 3423 Pike Ave., North Little Rock, SK 3-6616
 Schultz, John C. 900 North University, Little Rock, MO 4-3951
 Schwander, Howard 1115 Bishop, Little Rock, FR 5-2366
 Schwarz, W. J. Donaghey Building, Little Rock, FR 4-4712
 Scruggs, Joe B., Jr. Baptist Hospital, Little Rock, FR 4-3351
 Selakovich, Walter G. 500 South University, Little Rock, MO 6-2824
 Sessoms, William D. 1120 Marshall, Little Rock, FR 2-7502
 Shannon, Robert F. 12th and Bishop, Little Rock, FR 2-0292
 Shipp, Harvey D. 500 South University, Little Rock, MO 4-4321
 Shorey, Winston K. 4301 West Markham, Little Rock, MO 6-9461
 Shuffield, H. Elvin (Sec'y) 1000 Wolfe St., Little Rock, FR 5-2446
 Shuffield, Joe F. 1000 Wolfe St., Little Rock, FR 5-2446
 Simpson, N. Henry, Jr. Donaghey Building, Little Rock, FR 5-2801
 Sloan, James M. 5322 West Markham, Little Rock, MO 4-3814
 Smith, Charles A., III 500 South University, Little Rock, MO 6-2882
 Smith, Huie H. 1517 Main, North Little Rock, FR 4-7011
 Smith, James L. 623 Woodlane, Little Rock, FR 4-6491
 Smith, John McC. 4000 Woodlawn, Little Rock, MO 6-6570
 Smith, John W. 1415 West 6th, Little Rock, FR 4-1622
 Smith, Mose, III 5600 West Markham, Little Rock, MO 3-6313
 Smith, Purcell, Jr. 4001 West Capitol, Little Rock, MO 4-1596
 Smith, Thomas J. 500 South University, Little Rock, MO 4-4181

Smith, W. Myers 3421 A Pike St., North Little Rock, SK 3-3661
 Snodgrass, W. A., Jr. Donaghey Building, Little Rock, FR 4-2326
 Spitzberg, J. J. Donaghey Building, Little Rock, FR 2-3670
 Springer, Worthie R., Jr. 103 E. 2nd, North Little Rock, FR 4-2635
 Stainton, Robert M. 500 So. University, Little Rock, MO 4-4175
 Stanley, Joe Pat Pike Plaza Shpg. Ctr., No. Little Rock, FR 4-4071
 Stathakis, John Veterans Hospital, North Little Rock, FR 2-8361
 Steele, W. L. 5520 West Markham, Little Rock, MO 6-9431
 Stewart, Bill Dave 415 North University, Little Rock, MO 4-1521
 Stotts, John R. 5905 "R" Street, Little Rock, MO 3-6958
 Stover, A. R. Holbrook, Arizona
 Strauss, Alvin W., Jr. Waldon Building, Little Rock, FR 2-1828
 Stroope, Geo. F. 4117 J. F. Kennedy Blvd., N. Little Rock, SK 3-3487
 Stuckey, James G. 500 South University, Little Rock, MO 4-4383
 Sundermann, Richard H. 4301 W. Markham, Little Rock, MO 6-9461
 Swindoll, Bryant S. Ark. State Bd. of Health, Little Rock, FR 4-6361
 Taylor, James S. 4301 West Markham, Little Rock, MO 6-9461
 Teeter, John A. 806 North University, Little Rock, MO 4-3901
 *Thomas, James G. Little Rock
 Thomas, Peter O. 1310 Cantrell Road, Little Rock, FR 4-5703
 Thomas, Philip E. 418 Hall Building, Little Rock, FR 2-3829

Missouri-Pacific
 Hospital, Little Rock, FR 5-5381
 Thompson, Lawrence L. 5520 West Markham, Little Rock, MO 6-9431
 Thompson, Samuel B. St. Vincent Infirmary, Little Rock, MO 4-4261
 Thorn, Garland Max 500 South University, Little Rock, MO 6-0136
 Tolbert, Louis E., Jr. 500 South University, Little Rock, MO 4-4117
 Toombs, Vernon L. 1120 Marshall, Little Rock, FR 4-9568
 Valentine, Robert G. 4301 West Markham, Little Rock, MO 6-9461
 Vaughter, W. Roger 500 South University, Little Rock, MO 4-4377
 Wallace, Deane D. 6213 Lee Avenue, Little Rock, MO 4-4044
 Wallis, Charles D. 500 South University, Little Rock, MO 4-4146
 Walt, James R. 1120 Marshall, Little Rock, FR 2-7502
 Ward, Joseph P. Donaghey Building, Little Rock, FR 4-4063
 Warden, J. R. V.A. Hospital, North Little Rock, FR 2-8361
 Warford, Walton R. 605 North Spruce, Little Rock, (Res), MO 3-5832
 Washburn, A. M. 5305 Kavanaugh, Little Rock, MO 4-1525
 Wassell, John R. 500 South University, Little Rock, MO 4-2661
 Watkins, Charles J. Donaghey Building, Little Rock, FR 2-7026
 Watkins, John G., Jr. Donaghey Building, Little Rock, FR 2-7513
 Watson, C. Fletcher Donaghey Building, Little Rock, FR 5-5547
 Waison, Robert 1120 Marshall, Little Rock, FR 4-9568
 Weare, John L. 701 West Markham, Little Rock, FR 4-4311
 Webb, V. T. 1110 West Main, Jacksonville, 982-2108
 Weber, James R. Donaghey Building, Little Rock, FR 5-1121
 Wells, Travis L. 721 West 2nd, Little Rock, FR 4-2272
 Wenger, Carl E. 1120 Marshall, Little Rock, FR 4-6478
 Westerfield, Frank M., Jr. Century Building, Little Rock, FR 4-3609
 White, Oba B. Donaghey Building, Little Rock, FR 2-2960
 Whitehead, R. H., Jr. Baptist Hospital, Little Rock, FR 4-3351
 Wilbur, E. Lloyd 5322 West Markham, Little Rock, MO 3-4114
 Wilkes, Elbert H. 5300 Mabelvale Pike, Little Rock, LO 5-5810
 Wilson, James D. 500 So. University, Little Rock, MO 4-4166
 Wilson, James W. 1009 Wolfe, Little Rock, FR 5-5154
 Winn, Charles R., Jr. 813 Marshall Road, Jacksonville, 982-2141
 Wortham, Thomas H. 4301 West Markham, Little Rock, MO 6-9461
 Young, Douglas E. Pike Plaza Center, North Little Rock, FR 6-1972
 Young, Jerry M. 1121/2 East 7th, Little Rock, FR 4-8656
 Young, William O. Donaghey Building, Little Rock, FR 4-5158
 Zell, Lawrence M. Donaghey Building, Little Rock, FR 4-5158

RANDOLPH COUNTY

Baltz, M. A. 210 West Broadway, Pocahontas, TW 2-3111
 Barre, Hal S. 309 West Broadway, Pocahontas, TW 2-3371
 DeClerk, T. B. 204 Craft, Pocahontas, TW 2-3344
 Hamil, W. E. Simpson Bldg., Pocahontas, TW 2-5815
 Scott, William W. 309 West Broadway, Pocahontas, TW 2-3371
 Smith, Norman K. 108 Van Bibber, Pocahontas, TW 2-3389

SALINE COUNTY

Ashby, John W. 302 West South, Benton, SP 8-4511
 Baber, Quin M. 212 West Sevier, Benton, SP 8-3844
 Bethel, James C. 221 East Sevier, Benton, SP 8-3382
 *Blakely, M. M. Benton
 *Buffington, T. E. Benton
 Flora, Wayne W. 103 Martin Circle, Fort Smith, MI 6-3141
 Hogue, F. Paul 302 West South, Benton, SP 8-4511
 Hood, Robert H. State Hospital, Benton, SP 8-1111
 Jones, Curtis W., Jr. 223 South Market, Benton, SP 8-2722
 Jones, Curtis W., Sr. 223 South Market, Benton, SP 8-2722
 Jones, Robert E. 223 South Market, Benton, SP 8-3608
 Loveless, Donald E. 203 W. Carpenter Street, Benton, SP 8-8264
 Martindale, J. L. 321 Short, Benton, SP 8-7422
 Mizell, Walter S. Arkansas State Hospital, Benton, SP 8-1111
 Reynolds, M. Wayne Columbia, Missouri
 Thompson, John P. Arkansas State Hospital, Benton, SP 8-1111
 Thorn, H. B., Jr. 302 West South, Benton, SP 8-4511
 Walton, Charles R. Montgomery, Alabama
 Wright, John D. 321 Short, Benton, SP 8-7422

SCOTT COUNTY

Brown, E. J. Mansfield, 928-4848
 Jenkins, James A. Waldron, ME 7-6781
 Wright, Harold B. Box 249, Waldron, ME 7-6311

SEARCY COUNTY

Hall, H. J. 327 West Main, Clinton, 745-2122
 Hall, J. A. 327 West Main, Clinton, 745-2111
 Williams, John H. Box 177, Marshall, 448-2554

SEBASTIAN COUNTY

Adams, W. F. 100 South 14th, Fort Smith, SU 3-1183
 Allen, George W. 320 North Greenwood, Fort Smith, SU 2-3001
 Amis, J. W. 602 Garrison, Fort Smith, SU 2-9869
 Bailey, Charles W. P. O. Box 428, Greenwood, 4171
 Barta, Lloyd L. 922 Lexington, Fort Smith, SU 5-1447

Bost, Roger B. 4301 West Markham, Little Rock, MO 6-9461
 Boulden, Cecil F., Jr. 100 South 14th, Fort Smith, SU 3-1183
 Bradford, A. C. 100 South 14th, Fort Smith, SU 3-1183
 Brooksher, W. R. Station A, Box 3488, Fort Smith, SU 3-4803
 Brown, Byron L. 300 North Greenwood, Fort Smith, SU 3-0225
 Brown, James A. 2702 Barry Avenue, Fort Smith, SU 5-2636
 Chamberlain, C. T. 1500 Dodson, Fort Smith, SU 2-4092
 Chamblin, Don W. 1500 Dodson, Fort Smith, SU 2-4092
 Coffman, Edwin L. 1500 Dodson, Fort Smith, SU 2-4092
 Crigler, Ralph E. 1500 Dodson, Fort Smith, SU 2-4092
 Crow, Neil E. 1500 Dodson, Fort Smith, SU 2-4092
 Darnall, Harley C. 500 Lexington, Fort Smith, SU 2-8667
 Davison, Augustus M. Address Unknown
 Downs, Ralph A. 522 South 16th, Fort Smith, SU 3-3146
 Faier, S. Z. 1500 Dodson, Fort Smith, SU 2-4092
 Feild, T. A., III 3911 North O, Fort Smith, SU 3-5158
 Floyd, Charles H. 818 Lexington, Fort Smith, SU 3-3166
 Foltz, Thomas P. 500 Lexington, Fort Smith, SU 2-4051
 Foster, M. E. 807 South 25th, Fort Smith, SU 3-8053
 *Glenn, Clarence L. Fort Smith
 Goldstein, D. W. 100 South 14th, Fort Smith, SU 3-1183
 Goodman, R. C., Sr. 1500 Dodson, Fort Smith, SU 2-4092
 Hall, Charles W. 101 West Sycamore, Greenwood, 2361
 Hathcock, Alfred B. 1500 Dodson, Fort Smith, SU 2-4092
 Hawkins, Wright 100 South 14th, Fort Smith, SU 3-1183
 Henry, L. Murphey 602 Garrison, Fort Smith, SU 2-7261
 Henry, Louise M. 602 Garrison, Fort Smith, SU 2-7261
 Hewett, Archie L. 2700 Barry Avenue, Fort Smith, SU 5-2604
 Hoge, Arthur F., Jr. 310 North Greenwood, Fort Smith, SU 5-2661
 Hoge, Marlin B. 314 North Greenwood, Fort Smith, SU 2-4066
 Holmes, Williams C., Jr. 100 South 14th, Fort Smith, SU 3-1183
 Hornberger, E. Z. 404 South 16th, Fort Smith, SU 3-3159
 *Keck, H. M. Fort Smith
 Kelsey, J. F. 500 Lexington, Fort Smith, SU 5-2411
 Kirkpatrick, Hoyt, Jr. 1500 Dodson, Fort Smith, SU 2-4092
 Klopfenstein, Keith 1500 Dodson, Fort Smith, SU 2-4092
 Knight, W. E. 1500 Dodson, Fort Smith, SU 2-4092
 Koenig, A. S. 922 Lexington, Fort Smith, SU 5-1447
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 Krock, F. H. 1500 Dodson, Fort Smith, SU 2-4092
 Kutait, Kemal 1120 Lexington Avenue, Fort Smith, SU 5-2655
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 Lewing, Hugh 404 South 16th, Fort Smith, SU 3-3159
 Lockhart, William G. 1500 Dodson, Fort Smith, SU 2-4092
 Lockwood, Franklin M. 1500 Dodson, Fort Smith, SU 2-4092
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